

# **TRANSCRIPT OF RECORD**

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**SUPREME COURT OF THE UNITED STATES**

OCTOBER TERM, 1888.

**No. 115**

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**BALTIMORE & OHIO RAILROAD COMPANY, PLAINTIFF,**

**vs.  
ERIBA GEORGE, ADMINISTRATRIX OF THE ESTATE  
OF JOHN C. GEORGE, DEFENDANT.**

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(29,733)

SUPREME COURT OF THE UNITED STATES  
OCTOBER TERM, 1924

No. 113

BALTIMORE & OHIO RAILROAD COMPANY, PETITIONER,

vs.

FREDA GROEGER, ADMINISTRATRIX OF THE ESTATE  
OF JOHN C. GROEGER, DECEASED

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT  
OF APPEALS FOR THE SIXTH CIRCUIT

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## [fol. 1] IN UNITED STATES DISTRICT COURT

CAPTION—Omitted

[fol. 2] PETITION—Filed Feb. 15, 1921

Plaintiff says that she is the duly appointed, qualified and acting administratrix of the estate of John C. Groeger, deceased, by virtue of her appointment by the County Court of Marshall County, West Virginia.

That defendant is now and was at all times hereinafter referred to a railroad corporation organized and existing under the laws of some State other than Ohio and maintaining various lines and divisions of railroad, one of said lines extending from the State of West Virginia into the State of Ohio and into the City of Cleveland, Ohio; that defendant also operates other lines of railroad, one of said lines or divisions extending from Holloway, Ohio, to Brooklyn Junction, West Virginia; that defendant at all times hereinafter referred to was a common carrier of freight and passengers and it and this plaintiff's decedent were engaged in interstate commerce, and by reason thereof this cause of action is governed and controlled by the Federal Employers' Liability Act of April 22, 1908, and its amendments.

For her cause of action against defendant, plaintiff says that on September 3, 1920, and for some time prior thereto, her decedent, John C. Groeger, was in the employ of defendant as locomotive engineer; that on said date, in the performance of his duties, her decedent was acting as engineer for defendant company on a freight train running from Holloway, Ohio, to Brooklyn Junction, West Virginia, said freight train hauling a number of empty cars from the State of Ohio into the State of West Virginia; that on said date her decedent had started with a train of cars from Holloway, Ohio, and proceeded on said division to a point a short distance north of Proctor, West Virginia, when suddenly and without any warning, and without any knowledge on the part of her decedent of impending danger, the boiler of the engine exploded with great violence, resulting in immediate death to plaintiff's decedent.

Plaintiff says that the engine which her decedent was operating, which she believes was known as No. 2541, was in a dangerous, unsafe and insufficient condition in that the crown sheets of said boiler had been weakened by the previous overheating of same and that said crown sheets leaked during the operation of said engine; that, furthermore, the water glass indicator of said engine was in a defective and unsafe condition in that the same indicated water to the [fol. 3] proper height in said boiler when said boiler was low and had insufficient water.

Plaintiff says that her decedent at and prior to his death was guilty of no negligence on his part in any way contributing thereto, but that, on the contrary, his death was due wholly and solely to

and was the direct and proximate result of the negligence and carelessness of defendant in the following particulars, to wit:

First. Defendant was guilty of negligence and carelessness in causing, permitting and allowing a dangerous, unsafe and insufficient condition to be and remain in its ways, works and appliances, in that the crown sheets of said boiler were weakened and defective and unsafe by reason of being overheated prior to the grievances herein complained of.

Second. Defendant was guilty of negligence and carelessness in causing, permitting and allowing a dangerous, unsafe and insufficient condition to be and remain in said engine in that the water glass indicator placed on said engine for the protection of plaintiff's decedent indicated that the boiler of said engine had sufficient water at times when said boiler lacked sufficient water.

Third. Defendant was guilty of negligence and carelessness in failing and neglecting to furnish plaintiff's decedent a reasonably safe place in which to perform his labor in that said engine and its equipment were in a defective and unsafe condition as aforesaid.

Fourth. Defendant was guilty of negligence and carelessness in failing and neglecting to make an adequate and sufficient inspection of said engine and its equipment to the end that its dangerous and unsafe condition would be disclosed.

Plaintiff says that her decedent, John C. Groeger, at and prior to his death was thirty-five years of age, robust and strong, and earning and capable of earning about Three Hundred Dollars (\$300.00) per month in his occupation as locomotive engineer for defendant; that he left surviving him and wholly dependent upon him for support his widow, Freda Groeger, the administratrix herein, and two minor children, Irene, of the age of ten years, and Gertrude, of the age of seven years; that by reason of the negligence and carelessness of defendant as aforesaid, the widow and children of plaintiff's decedent have been deprived of their support, all to their damage in the sum [fol. 4] of Twenty-five Thousand Dollars (\$25,000.00).

Wherefore, plaintiff on behalf of the widow and children of decedent prays judgment against defendant in the sum of Twenty-five Thousand Dollars (\$25,000.00), with costs of this action.

E. C. Chapman, Attorney for Plaintiff.

Jurat showing the foregoing was duly sworn to by E. C. Chapman omitted in printing.

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IN UNITED STATES DISTRICT COURT

PRECIPICE FOR SUMMONS—Filed Feb. 15, 1921

Issue summons against the defendant, to the U. S. Marshal, Northern District of Ohio, returnable according to law; endorse:

"Action for Money Only; amount claimed, Twenty-five Thousand Dollars (\$25,000.00)."

E. C. Chapman, Attorney for Plaintiff.

[fol. 5] IN UNITED STATES DISTRICT COURT

SUMMONS AND MARSHAL'S RETURN—Filed Mar. 21, 1921

The President of the United States of America to the Marshal of the Northern District of Ohio, Greeting:

You are hereby commanded to notify The Baltimore & Ohio Railroad Company that it has been sued by Freda Groeger, Administratrix of the estate of John C. Groeger, deceased, in the District Court of the United States, within and for the Eastern Division of the Northern District of Ohio, and that unless it answers by the 19th day of March, A. D. 1921, the petition of the said plaintiff against it filed in the Clerk's office of said Court, at Cleveland, in said Division and District, such petition will be taken as true, and judgment will be rendered accordingly.

You will make due return of this summons on the 28th day of February, A. D. 1921.

Witness, the Honorable John M. Killits, and the Honorable D. C. Westenhaver, District Judges of the United States, this 15th day of February, A. D. 1921, and in the 145th year of the Independence of the United States of America.

B. C. Miller, Clerk, by C. A. Wilder, Deputy Clerk. (Seal.)

Returnable second Monday after issued. Answer day third Saturday after return day.

THE UNITED STATES OF AMERICA,  
Northern District of Ohio, ss:

Received this writ at Cleveland, Ohio, February 16th, 1921, and on the 17th day of February, 1921, at the same place I served it on the within named, The Baltimore & Ohio R. R. Company, by delivering to J. P. Leingang, Chief Clerk for the said The Baltimore & [fol. 6] Ohio R. R. Company. Personally a true and certified copy hereof. With all endorsements thereon. The President Chairman of the Board of Directors or Trustees or other Chief Officers could not be found in my District.

Chas. W. Lapp, U. S. Marshal, by D. J. Connor, Deputy.

Marshal's fees:

Travel .....	\$ .12
Service .....	2.00
	<hr/> <b>\$2.12</b>

## IN UNITED STATES DISTRICT COURT

ANSWER—Filed Apr. 2, 1921

Now comes the Baltimore and Ohio Railroad Company and for answer herein admits its corporate organization and existence as in the petition alleged; admits that plaintiff is the duly appointed, qualified and acting administratrix of the estate of John C. Groeger, deceased; admits that on or about the 3rd day of September, 1920, plaintiff's decedent was in its employ as an engineer and on said date, while so employed, received certain injuries resulting in his death.

Defendant further admits that at the times referred to plaintiff's decedent and defendant were engaged in interstate commerce and that the respective rights and liabilities of the parties hereto are governed and controlled by the Employers' Liability Act of 1908 and amendments thereto.

Further answering defendant denies each and every allegation in said petition contained other than herein expressly admitted to be true.

[fol. 7] Wherefore, having fully answered defendant asks to go hence with its costs.

Tolles, Hogsett, Ginn & Morley, Attorneys for Defendant.

STATE OF OHIO,  
Cuyahoga County, ss:

W. T. Kinder, being first duly sworn, says that the defendant, the Baltimore and Ohio Railroad Company, is a corporation; that he is one of the attorneys for the said defendant, duly authorized herein, and that the statements and allegations contained in the foregoing answer are true as he verily believes.

W. T. Kinder.

Sworn to before me and subscribed in my presence this 2nd day of April, 1921. David C. Brown, Notary Public.  
(Seal.)

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## IN UNITED STATES DISTRICT COURT

ORDER CONTINUING CAUSE—Filed April 24, 1922

This day came the parties by their attorneys and also came the following named persons as jurors, to wit: Eli Adams, Ed. P. Aldridge, H. H. Blakeslee, Fred J. Bockley, James W. Butler, S. P. Everhart, Phillip Fox, M. L. Hitcheock, V. C. Jeans, Arthur Lersch, Richard Williams and E. E. Sperry, who were duly impaneled and sworn according to law and the trial proceeded. The jury having heard the testimony in chief on behalf of plaintiff in part, but not the conclusion thereof, and the hour of adjournment having arrived,

the further trial of this case is continued until tomorrow morning at 9:30 o'clock.

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[fol. 8]

IN UNITED STATES DISTRICT COURT

**VERDICT AND JUDGMENT**—Filed April 26, 1922

(Entered April 26, 1922, by D. C. Westenhaver, Judge)

This day again came the parties by their attorneys and also the jury heretofore impaneled and sworn herein according to law and the trial proceeded. And the said jury having heard all the testimony adduced on behalf of the parties, the arguments of counsel and the charge of the court, retired to their room in custody of a sworn officer of this court to deliberate upon their verdict. And now comes said jury into open court with their verdict in writing, signed by their foreman, which verdict reads and is in the words and figures following, to wit:

"The District Court of the United States, Northern District of Ohio, Eastern Division. Freda Groeger, Administratrix of the Estate of John C. Groeger, deceased, plaintiff, vs. The Baltimore & Ohio Railroad Company, defendant. Verdict. No. 10927 Law. We, the jury, on the issue joined, find for the plaintiff and do assess her damages in the sum of Ten Thousand Five Hundred and Seventy-six and no/100 Dollars (\$10,576.00).

E. E. Sperry, Foreman."

which said verdict was by the Clerk of the court read in the hearing of said jury, when to which they gave their assent.

It is, therefore, considered and adjudged by the court that said plaintiff recover of said defendant said sum of Ten Thousand Five Hundred and Seventy-six and no/100 Dollars (\$10,576.00) so as aforesaid found due her by the jury, together with her costs herein expended, taxed at \$—, and that said defendant pay its costs.

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[fol. 9]

IN UNITED STATES DISTRICT COURT

**MOTION FOR NEW TRIAL**—Filed Apr. 26, 1922

Now comes the Baltimore and Ohio Railroad Company, defendant herein, and after a verdict and within three days from the rendition of the same moves for a new trial in the above entitled cause for any or all of the following reasons affecting materially the rights of the defendant in this case:

1. Because the verdict of the jury is against the evidence in the case and not supported by the evidence.

2. Because the verdict of the jury is against the weight of the evidence.
3. Because the verdict of the jury is contrary to law.
4. Because the Court erred in overruling the motion of the defendant to direct a verdict in its favor at the close of the evidence offered by the plaintiff, to which ruling defendant excepted at the time.
5. Because the Court erred in overruling the motion of the defendant to direct a verdict in its favor at the close of all the evidence, to which ruling of the Court defendant excepted at the time.
6. Because the Court erred in the exclusion of evidence offered by the defendant, to which rulings the defendant excepted at the time.
7. Because the Court erred in admitting evidence offered by the plaintiff, over the objection of the defendant, to which ruling defendant excepted at the time.
8. Because the Court erred in its charge to the jury, to which defendant excepted at the time.
9. For other irregularities occurring and errors committed on the trial, which prevented defendant from having a fair trial and to which defendant excepted at the time.

Baltimore and Ohio Railroad Company, by Tolles, Hogsett,  
Ginn & Morley, Its Attorneys.

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[fol. 10] IN UNITED STATES DISTRICT COURT

ORDER OVERRULING MOTION FOR NEW TRIAL—Filed June 15, 1922

This day this cause came on to be heard on the motion of defendant for a new trial and was submitted to the Court, on consideration thereof the Court overruled said motion, to which ruling of the Court defendant, by its attorneys, excepts.

It is further ordered by the Court that the defendant have fifty (50) days in which to prepare, settle and file its bill of exceptions, in accord with general rule No. 38.

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IN UNITED STATES DISTRICT COURT

ORDER ALLOWING BILL OF EXCEPTIONS—Filed July 22, 1922

This day the bill of exceptions in this case was presented to the Court, the same having been delivered to the Clerk by the except-

ing party, in accordance with Rule 38 of the General Rules of this Court, and the adverse counsel having been notified of such delivery, and no objections or suggestions thereto having been filed, the same is allowed and signed and ordered to be filed in this case.

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IN UNITED STATES DISTRICT COURT

BILL OF EXCEPTIONS—Filed July 22, 1922

Be it Remembered that on the trial of the above entitled cause, in the District Court of the United States for the Northern District of Ohio, Eastern Division, at the April, 1922, Term thereof, before [fol. 11] Honorable D. C. Westenhaver, Judge of said Court, and a jury duly empaneled and sworn, the following proceedings were had:

Trial commenced April 24, 1922.

Appearances: For the plaintiff, E. C. Chapman, Esq.

For the defendant, W. T. Kinder, Esq., and James P. Wood, Esq., of Messrs. Tolles, Hogsett, Ginn & Morley.

Thereupon statements of the case were made to the jury by counsel for the respective parties.

Thereupon the plaintiff called as a witness, WILBUR J. DIXON, who, being first duly sworn, testified, as follows:

Direct examination by Mr. Chapman:

My name is Wilbur J. Dixon. I am thirty-five years of age. My occupation is that of Assistant Master Mechanic at the shops of the Baltimore & Ohio Railroad Company at Holloway. I have held that position for two years and one month, which includes the time the accident happened to John Groeger, near Proctor, West Virginia, with engine 2541.

In a general way I was familiar with engine 2541. It was not equipped with a fusible plug. I did not see the boiler after the explosion. I have viewed boilers after explosions and am familiar with stay bolts, intermediate stays, radial stays, and crown stays, as used in a locomotive boiler.

The breaking of stay bolts in a boiler is caused by a certain amount of vibration set up, due to the difference in expansion of the fire box sheet and wrapper sheet. This has a tendency to cause the bolts to break. Overheating of the crown sheet will not cause a break in those bolts. The difference of expansion in heat between the crown plate and outer plate causes a strain on those bolts to a certain extent.

My deposition was taken at Flushing. As to the following question and answer: "What happens when the crown stays are loosened, under the circumstances when the water gets too low?"

A. The crown stays either have to fracture or pull out of the hole."—I don't recall whether that question was answered, but if it was that would have been my answer. Overheating of the crown [fol. 12] sheet, in my experience, would not cause fracture of the stay bolts or a breaking of the stay bolts.

I did not see the boiler after this explosion. This was a Consolidation type of locomotive. I couldn't say what company it was made by but it was a standard type of locomotive used in the freight service.

— I never saw a fusible plug in a locomotive boiler.

I have worked for the Chicago, Burlington & Quincy, Erie Railroad and Illinois Central. I worked between December, 1911, to about February 1st, 1913, for the Erie Railroad at Meadville, Pennsylvania.

In my experience with locomotive boilers I have known of foaming in the boiler of a locomotive, but not being engaged in road service I have never witnessed the actual performance. Alkali in the water will cause a foaming in the boiler, and will have a tendency to make the water glass become dirty. If it becomes very pronounced it might cause an excessive fluctuation of the reading of the glass.

#### Cross-examination by Mr. Kinder:

— A fusible plug was not used on the Baltimore & Ohio System, to my knowledge, the Illinois Central or the Chicago, Burlington & Quincy. During my connection with the Erie between 1911 and 1913, they were not used, according to my observation. I couldn't say whether they are used by the New York Central Lines, or the Pennsylvania. I am not familiar with the use of the fusible plug on the Nickel Plate System.

This engine was a Consolidation type, No. 2541. That is a type of the wheel arrangement of the engine as distinct from the boiler. This was a road engine; a freight engine devoted to freight service.

I am assistant master mechanic at Holloway, one of the Baltimore & Ohio terminals. I was acquainted with that engine in a general way. That was an engine of standard and approved design for freight service, generally speaking. I do not know who the manufacturer was.

Foaming of the water at times when the water becomes strongly alkaline has some effect on the water level in the water glass. I never noticed any such condition in the territory in which I am located. When a boiler foams, the fluctuations are rather rapid, and the water rises and falls sharply and rapidly in the glass, momentarily. Foaming does not cause a continued rise in the water [fol. 13] glass but a momentary up and down change in level. If a boiler should foam, the action of the water in the water glass would be easily recognized by the engineer.

Redirect examination by Mr. Chapman:

In the practical operation of a boiler a deposit is formed in the boiler from the water by way of a scale. If the sight glass feed is not given any attention, it possibly becomes clogged up. In my experience, I have observed the injectors become obstructed by the deposit of scale in the boiler and also the gauge cocks.

Recross-examination by Mr. Kinder:

I am located at Holloway and my division runs down through Bridgeport to Brooklyn Junction, West Virginia. The engines take water at Holloway, and on the way to West Virginia they take water first at Fairpoint, next at Maynard, next at Bridgeport, and, crossing the river, they first get water at Benwood. From there on I am not familiar with the road. In a general way I was familiar with the water conditions of the Baltimore & Ohio at those points prior to September, 1920. The water at Holloway, Ohio, is what is considered a good water, free from alkali and acid. The water at Fairpoint has a tendency to be acid and also at Maynard. The water at Bridgeport is considered good water, similar to that at Holloway, Ohio. The water at Benwood, West Virginia, is good, being a treated water. I am not familiar with the situation from Benwood to Foster. The number of times a man would take water between Holloway and Foster Tower would vary under different conditions.

On and prior to the 3rd of September, 1921, we were having no trouble from our division from alkaline water.

CHARLES R. BETHEL, a witness called by plaintiff, being first duly sworn, testified as follows:

Direct examination by Mr. Chapman:

My name is Charles R. Bethel. I live at Flushing, Ohio. My business is that of railroading for the Baltimore & Ohio.  
[fol. 14] I have worked for the Baltimore & Ohio Railroad since April, 1913. At the present time I am a watchman. I knew John C. Groeger in his life time and was on the train with him at the time of the accident. Mr. Groeger and I took that train from Holloway sometime in the A. M., I don't just remember; it was along about daybreak, I think. I was conductor on that train and Groeger was the engineer. I compared time with Mr. Groeger before leaving Holloway on that morning. He and I took that train through to Bridgeport and from Bridgeport through to McMechen, West Virginia.

Q. From McMechen through to Meadsville, what, if anything, unusual did you observe about the operation of that engine?

Mr. Kinder: I object to the form of the question.

The Court: I do not see anything objectionable as to form.  
Overruled.

Mr. Kinder: Exception.

A. Well, slack running up into the train from the rear.

(Narrative continued:) That indicated to me that the engineer had shut off. The train still kept moving. The engine did not stop before we reached Moundsville, and at no point before reaching there was there any repair made on that engine by me or the engineer.

My deposition was taken in this matter early in this year at Flushing. At that time I stated there was a link hanger broken on that engine. I didn't know anything of it until we got to Chestnut Hill, which is west of Moundsville—it is the opposite direction, east by the right direction. Chestnut Hill is beyond Moundsville, east. After we pulled into the siding, after we stopped, I think he said the link hanger had been broken. He said it could not be reversed. I do not know what the link hanger is on an engine.

From that time on we made not a very good run down the river. We kept going all the time.

From Moundsville to Foster Tower I was on that engine by instructions from our train dispatcher, which were to ride the head end to Foster Tower to sign 31's orders, which I did. During that time, if I remember right, one injector was working. I don't think I can tell from the sound when an injector is working. I don't know if there is any difference in the sound when the injector is not working. [fol. 15] I don't remember if one injector was working when we arrived at Foster Tower. One injector was working between Chestnut Hill and Foster.

I was asked about that at Flushing early this year. As to the question and answer: "Q. At the time you were on the engine at Foster Tower, what is the fact as to whether or not either or both the injectors were in operation? A. The right injector was working"—it was working; it had been working. I don't recall if I answered, "The right injector was working." I don't recall if one injector was working at Foster Tower. I testified at Flushing that one injector was working somewhere between those points, but I don't remember right at the tower when we stopped. I know it was working before we reached Foster Tower.

I don't remember between those points as to whether or not I saw either the engineer or any of the crew operate the gauge cocks on that engine. I saw the gauge cock operate on that engine some place before we reached Foster Tower, but I don't recall. It was after we reached Moundsville I saw the gauge cock. Chestnut Hill is beyond Moundsville. I got on the engine at Chestnut Hill. I wasn't on it before that. I continued on it until we got to Foster Tower, under instructions to sign for instructions at Foster Tower. It is possibly five or six miles from Chestnut Hill to Foster Tower; and between those two points I saw the gauge cocks turned by some member of the crew. When the gauge cock was turned it had blue steam coming out of it. I don't remember which gauge cock was

tried. I didn't notice whether the top one, second one, or bottom one. The purpose of those gauge cocks on an engine is to show the man the water in the boiler. In my duty as conductor of that train, to a certain extent I am to assist the engineer in the operation of it over the road. When blue steam came from the gauge cock it indicated to me there wasn't any water in the boiler.

Q. Did you say anything to the engineer or call his attention to that?

Mr. Kinder: I object.

The Court: Overruled.

Mr. Kinder: Exception.

The Court: Did you or did you not call his attention to what you observed in the gauge cock?

The Witness: I don't recall. I don't remember of saying anything at all.

[fol. 16] (Narrative continued:) On my trip in that engine I observed the water glass gauge. The water boiled, or something—went up in it and then down. I don't know how far up the water went in the gauge. It went down out of sight. I just saw it do that the one time between Chestnut Hill and Foster. I don't think I rode the engine from Foster Tower on to Wells Pit. After I saw that sight glass going up and down, I don't remember that I observed it again before leaving the engine.

(Signed statement handed witness.) That is my name. I don't know whether I wrote that or not. It looks like my signature. I recall being interviewed about this matter shortly after this accident occurred. That is my initial and name; I don't know whether I wrote it or not. I guess it is my signature. I recognize that as a statement I made to somebody at one time. I don't remember when I got off the engine whether one injector was working or not. I don't remember of making the statement, "I rode the engine from Chestnut Hill to either Foster Tower or Wells Pit. All the way from Moundsville to where it blew up he had had trouble with the engine all the way, kind of working on one side all the way. When I got off the engine I am sure one injector was working." I couldn't say whether the injector was working or not. It was on before we reached Foster. It was growling like it was working. It was set to work at some time between Chestnut Hill and Foster, before I got off. That is the only observation I made of the injector.

Nothing was done with the engine at Foster Tower. The tank was filled with water there. I don't remember if I rode on the engine after Foster Tower or went back to my caboose. When the explosion occurred I was in the caboose. The explosion occurred near Proctor, West Virginia, possibly two miles and a half or three from Foster Tower. I would not know how long that was after I left the engine for I don't remember where I left the engine, whether I rode between Foster Tower and Wells Pit or not. If I rode up to Wells Pit it couldn't have been over twenty to thirty minutes. If I left it at Foster, it would possibly be close to an hour.

After the explosion I went to the head end. I saw the boiler laying down the track and a man running through the field and one laying in the field. John Groeger was laying between the track and the river. He was dead. Fireman Marshall was laying eight car lengths behind the engine, along the train. He was not dead. I saw the [fol. 17] head brakeman, who was standing, or running, through the field. The boiler of the engine was laying on the left hand side of the track, about close to four hundred feet ahead of the train, upside down and into the ground. The rest of the locomotive was still connected up to the train and the boiler as I say, was some 350 or 400 feet away.

Cross-examination by Mr. Kinder:

I do not know anything about the link hanger myself. The engineer said it is an arrangement on an engine in regard to the reversing of the engine. I do not know enough about the engine to know it has nothing to do with the boiler. As far as I know, it is part of the running gear of the engine. I do not think it has any connection with the boiler.

I saw this blue steam come out of the gauge cocks between Chestnut Hill and Foster. I just looked at the water in the water glass and saw it go down apparently to the bottom of the water glass. It was between those points the gauge cock showed blue steam.

(In response to questions by the Court:)

The water glass, feed gauge and gauge cocks I saw turned were on the engineer's side of the engine. When the water feed gauge and gauge cock behaved as I described, the engineer was sitting in his position. Fireman Marshal was the one that turned the gauge cock. He was over in the engineer's box at the time he did that; and that was before we got to Foster Tower. When we got to Foster Tower, after I made these observations, water was taken by the engine.

Redirect examination by Mr. Chapman:

I don't remember if in my experience of railroading I had ever seen a water glass gauge come up at the top and then go down to the bottom as I have described that did. I don't recall of ever seeing any demonstration like that in a water glass on an engine in my experience on an engine.

(In response to questions by the Court:)

I never worked as fireman or engineer. I was always brakeman or conductor. What I know about an engine is what I observed in reporting to the engine in connection with my duties.

[fol. 18] CHARLES EDWARD MCGANN, a witness called by plaintiff, being first duly sworn, testified as follows:

Direct examination by Mr. Chapman:

My name is Charles Edward McGann. I live at Pittsburgh, Pa. I am Master Mechanic, Baltimore & Ohio Railroad, Pittsburgh Division, and have been such since August 1st, 1919.

I was Master Mechanic on the day of the accident to Mr. John Groeger on engine 2541. When I got notice of the accident I was in front of the Y. M. C. A. Building at Benwood. I went to the scene of the accident immediately after receiving notice and made an inspection of the boiler and engine. I was notified about twelve-ten or twelve-fifteen p. m., and arrived at the scene of the accident, as near as I can judge, about 2:40 p. m. I made an inspection of the fire-box, but we are prevented from making further inspection, according to the Interstate Commerce Rules, so we made observations as to the fire-box and condition of the boiler.

We found six intermediate stays and one stay bolt at the forward part of the crown sheet, broken. There were two adjacent broken bolts on the left side, if I remember correctly. I haven't my records with me. There were three broken stays on the left side and three on the right side, intermediate stays, and the three on the right side were in a radius of, I would say, sixteen inches, and the two adjacent, on the left side, were within eight inches. The third one was within twelve inches of the other two—one was skipped and another bolt broken. The broken crown bolt was in the fifth row from the flue sheet. None of those broken bolts had tell-tale holes in them.

A tell-tale hole is drilled in a stay bolt which is shorter than eight inches, and drilled in to the depth of one and one quarter inches, extending from the outside wrapper sheet, inside, into the water space, so that when a bolt breaks on the inside between the fire-box sheet and the outside wrapper sheet, the steam or water will escape through this small hole and will show a man where his broken bolts are. The law requires them to be drilled in all bolts eight inches and under in length. These bolts that were broken were radials and the upper portion of the crown sheet that does not require tell-tale holes in them.

[fol. 19] There was not a fusible plug in the crown sheet of that locomotive. From my examination of that fire-box and those broken bolts I have described, I would say those bolts were broken prior to the explosion. I am able to tell that by the accumulation of scale on the end of them.

Q. What is the fact, Mr. McGann, as Master Mechanic of that division, as to whether you would have allowed the operation of that boiler over that trip that day if you had known of those broken stay bolts in the boiler?

Mr. Kinder: I object.

The Court: There may be some objection to the form; I don't see any objection to the substance.

Mr. Kinder: My objection is not so much to the form. Unless there can be any connection between the bolts we are talking about and this explosion, we are entering into a field of speculation and not a matter which is competent.

The Court: We cannot get to all of that at once. I do not know about that.

Mr. Kinder: I should like to have the other question precede that one, so that we shall not be speculating about the effect of these broken bolts.

The Court: That would require the Court, in order to make a ruling, to determine the facts, or an inference from facts; and I do not think the Court is the proper person to do that. Your objection will be overruled; but I think the proper form of the question would be whether or not those defective bolts were such as, in careful railroading inspection, would require repair before further use of the engine.

Mr. Kinder: Exception.

Q. What is your answer to that?

A. If the condition of these bolts would have been known, they would have been removed and new ones applied.

Q. My question was, would you have allowed this engine to make that run from Holloway to Brooklyn Junction on that day if you had known those bolts were broken within that boiler?

Mr. Kinder: Same objection.

The Court: Overruled.

Mr. Kinder: Exception.

A. No, sir.

[fol. 20] Q. Your answer is you would not?

A. Yes.

(Narrative continued:) In the operation of the boiler there is a deposit within the boiler of scale or sediment from the water. That obstructs, at times, both the gauge cocks and the water glass on the boiler. I might add that they are required to remove them monthly and clean the same. If allowed to continue they will accumulate with dirt and scale and obstruct the proper reading. In my experience as Master Mechanic I have seen that condition arise where those things became obstructed.

I have seen a fusible plug in locomotives. Its purpose is to warn the engineer in case of his negligence in allowing the water to become low in the boiler; it tells him he has lost his water. If the engineer in charge of the boiler on line or road finds water getting low, getting below a safe point, he draws the fire. A fusible plug is a brass plug with a square on the bottom of it and drilled out, either five or six small holes, or one large hole, and filled with babbitt metal or pewter, or some soft substance. The crown sheet is tapped out at the forward part, the highest part of the crown sheet, and

this plug screwed in, extending above the sheet about one half or three quarters of an inch, so that when the water gets low in the boiler, the intense heat will allow this metal to become softened and run out in the lower part of the fire-box, and some water escapes and drowns out his fire, and makes an awful noise in the fire-box, and then he knows his water is low and he takes the precaution to draw the fire to save further damage. It acts as a supplemental safety valve, but they are considered unsafe, due to the fact that this accumulation of scale gets on this metal plug and while the water is still over this plug, or is on top of the soft metal, it allows it to come out, run out in the fire-box, and oftentimes causes serious injury and serious burns. I never knew, in my experience, the blowing out of a fusible plug to blow up the boiler. It is not as serious when the fusible plug melts out and allows the escape of the steam, as when the boiler blows up. The fusible plug is placed from half to three-quarters of an inch above the top of the crown sheet. When the water gets below the highest part of the fusible plug and before it reaches the crown sheet, it exposes the top of the fusible plug with [fol. 21] the soft metal in it, and the soft and fusible metal will melt out before the bolts of the crown sheet.

In the operation of a locomotive engine of the type 2541 was, and over this point of the division, say from Moundsville to Wells Pit and Proctor, one injector will supply the boiler if the water regulating valve is properly adjusted. With everything working normal, one injector will keep the water in that boiler above the crown sheet.

#### Cross-examination by Mr. Kinder:

An injector can be likened to a water faucet; it depends on how far it is turned on as to how much water is going into your boiler. The engineer makes that adjustment. He adjusts his water valve to the circumstances and condition. If he uses a heavy throttle and going along, he opens his water valve and keeps it well supplied. He does this by looking at the gauge cocks and if he sees his water is going down too fast, he lets it open a little further. These injectors are made to supply 4,500 gallons per hour, and if properly applied could fill the boiler in a short space with one injector. By being "properly applied" I mean if the engineer understands the manipulation of the engine, he can fill the boiler.

When the term "injector" is being used, it is important to know how far it is on.

Fusible plugs are not in use on the Baltimore & Ohio Railroad System. When I was serving my apprenticeship, in 1902, they had them on the Cincinnati & Southern Railroad. I am not familiar with conditions obtaining on the New York Central or the Pennsylvania in regard to fusible plugs. I am not familiar with whether they are in general use on standard railroads only from what I hear from other master mechanics, that they are not used on other roads. I don't know personally; I never worked for very many railroads. I have made inquiry and investigation in the railroad work to find

out their place in the equipment and operation of engines, and the result is I find they have not gone into general use.

The objection to fusible plugs is they accumulate scale on top of the plug and this allows the metal to come out and causes the engine to fail and it is necessary to give up service on line or road. It oftentimes results in injuries to the crews; maybe the fireman is [fol. 22] down putting in a fire, and if he should be firing there just at the time the metal comes out of the plug, that pressure in the boiler will blow the fire and hot cinders out of the fire-door, and it has proven very detrimental. The water and steam, when it comes out through the plug, comes down into the fire-box at a pressure of 175 to 200 pounds per square inch, throwing the fire and hot coals out of the fire-door. It has been determined to be unsafe, at least on the Baltimore & Ohio, I would say back as far as 1902 or 1903. Prior to that time I think they were used; that was before my time, before 1906.

I made an examination of the crown sheet and the various parts of the boiler after the explosion and after the boiler was available after the Interstate Commerce people got through inspecting it. I examined the crown sheet with reference to locating the tear made in the crown sheet by the explosion and to determine the area through which the tear went. In connection with that examination, the relative position of these broken stay bolts was plain to me.

Q. State whether or not, in view of your examination, the appearance of the tear and the condition of the stay bolts over which the tear occurred and the location of the broken stay bolts, that is, five or six broken stay bolts that you speak about,—whether or not in your judgment as an expert on these matters these broken stay bolts would have been a contributing factor to this boiler explosion?

A. These stay bolts had no contributing cause toward the failure whatever.

Q. In other words, it is not true, Mr. McGann, that this boiler explosion, from your examination of the appearance of the crown sheet and the location of the boiler, this boiler would have exploded if all of those five or six broken stay bolts you found would have been intact and in proper condition?

A. Yes, sir, it would have occurred.

Redirect examination by Mr. Chapman:

When you wash the boiler, you renew the fusible plug, put a new plug in. Scale would form about the same on the fusible plug and no deeper than it would on all the rest of the boiler. The need for washing that plug would be just the same as the rest of the boiler.

I never saw those plugs drawn up to a point on the inside of the crown sheet to prevent the formation of scale from the water. [fol. 23] Drawing that soft metal to a point would tend to prevent the formation of the deposit on that soft plug.

JOSEPH A. BOYDEN, a witness called by plaintiff, being first duly sworn, testified as follows:

Direct examination by Mr. Chapman:

My name is Joseph A. Boyden. I am Production Manager with the Van Dorn Iron Works, Cleveland. I am 45 years of age and have been connected with locomotive engines for 24 years.

My experience with locomotive engines has been from apprentice boy up to a master mechanic, including all the different foremanships, round-house foreman, company shops foreman, general foreman, and inspector; and one year's experience as inspector for Baldwin Locomotive Works for the railroad. I worked several years as master mechanic on the Erie Railroad. I am familiar with the various locomotive engines in general use.

In railroad talk, a fusible plug is known as a soft plug. It is put into the highest point of the crown sheet, that is, the top of the inside of the fire-box. There is a soft metal applied to this brass plug so that if the water gets low this metal will melt. It is used as an alarm or a safety device to the engineer to know that his water is low in his boiler. When the fusible plug operates, it relieves the pressure between the fire-box sheet and the outside wrapper sheet, so that a boiler cannot blow up.

I saw those fusible plugs in operation, directly, seven years that I was master mechanic. I used them on 178 engines on the Erie Railroad, during the period from 1912 to 1919. During that time I never had a boiler blow up, due to the safety plug. We have had plugs give out on the railroad due to poor workmanship in the applying of the soft metal in the plugs. I have never recalled of an engineer or fireman being injured due to this. I have heard there was a case, but I have never seen it.

I was a year at the plant of the Baldwin Locomotive Company.

Q. Now, in your experience at that plant, and your general experience, what is the fact as to whether or not those plugs were [fol. 24] in general use and standard equipment on locomotives?

Mr. Kinder: I object to that.

The Court: That is a part of the ultimate way of proving it; he may answer.

Mr. Kinder: Exception.

A. Well, I couldn't specify the different railroads that were using plugs, outside of the Erie.

(Narrative continued:) Fusible plugs were put in the locomotives manufactured at the Baldwin plant while I was there that I inspected. I was particularly inspecting Erie engines. I wouldn't say if other engines were manufactured for other companies by that locomotive company while I was there. There was some engines they were installed in by the manufacturer but I would hesitate to say what railroad, or what percentage they were of the total output of the engines made.

Q. In your opinion, Mr. Boyden, what can you say as to the efficiency of those plugs as a preventative of a boiler explosion on a locomotive engine?

Mr. Kinder: I object.

The Court: Overruled.

Mr. Kinder: Exception.

A. Well, as I have stated, I have never in my experience as a railroader on any of the divisions I have handled, ever had anybody injured. We have had low water cases but the only thing that would happen, if the engine would die on the main track, we would have to go out and pull the engine and train in with another engine.

✓ The Court: That is, when the plug blew out?

The Witness: When the soft metal gave way due to low water.

Q. In your experience at any time, did you have the coming out of a soft plug due to low water, from any cause, that caused any damage to the engine?

Mr. Kinder: I object; that is not the test.

The Court: Overruled.

Mr. Kinder: Exception.

A. No, sir.

(Narrative continued:) The falling and rising of water in the sight glass feed tube to practically the extent of the water glass is [fol. 25] due to foaming in the boiler, which may be due from alkali or soda that would get into your boiler. A low stage of water in the boiler would not cause it to rise and fall. It would have to be a matter of foaming from one of the causes I mentioned or something else.

When the water in the boiler is foaming, if the engineer happens to be trying his gauge cocks when the water is dropping it will show him no water; if he happens to be trying the gauge cocks when the water is rising it will show he has got water. It affects the apparent height as indicated in the water glass; it raises and lowers it.

I am familiar with the different types of bolts—crown bolts, radial stays, and stay bolts—as used in a locomotive boiler between the crown sheet and the outside shell.

Assuming there were three broken intermediate bolts in an eight-inch circle on one side, and three on the other in an eighteen-inch circle, two of them adjacent, and one crown bolt was broken,—it is bound to weaken the boiler at that point. The fact two of those broken bolts were adjacent, distributes the load over to the next bolts, which have to carry the loads of the broken ones.

Gauge cocks can become obstructed by scale formation in the boilers. If you wash your boiler often enough that can be prevented. I wouldn't say the scale forms in the gauge cock pipes the same as the rest of the boiler, because in opening your gauge cocks the pressure is so great you constantly blow them out. When they would become obstructed you couldn't use the gauge cocks, nothing would come out; it would be simply plugging it up.

In the practical operation of locomotives a breaking of the radial stays, intermediate stays, or crown stays in a boiler would be caused by the vibration of your locomotive. It may start from mud burns; for instance, in washing your locomotives and the mud isn't all washed out, you are liable to get what we call in railroading a "mud burn." In other words, if the mud gets on the sheet and will form around the threads of your crown bolts, it will bake it on and you will finally get that off and get cold water on the thing and they will crystallize and break. The overheating of a crown sheet has a tendency to draw or pull or strip threads of the bolts and crack them. [fol. 23] The bolts are of a softer type of metal than the crown sheet itself of the boiler, and the stay bolts are made of soft iron especially to take care of the expansion and contraction between hot and cold.

Broken radial and intermediate bolts in a boiler may be detected by hammer test. When a boiler comes in for boiler wash or inspection, there is a man known in the plant as a boiler inspector who takes a hammer and goes over every one of those bolts and tests them. He tests that by his ear, the sound, whether that is a defective bolt or whether it is a solid bolt.

On the railroad I was on, to prevent the formation of scale on the fusible plugs used in the locomotives, we filled these plugs with a soft metal and then made them in a crown shape, put them in a lathe and crowned them so that everything would slide, the scale would slide off from them. That prevented the formation of scale within the boiler on that plug.

#### Cross-examination by Mr. Kinder:

I have been with the Van Dorn Iron Works two years and a half. I left the Erie in the early part of 1919; I have been out a little over three years.

Without the plug, the engineer has three gauge cocks and his water glass to determine the height of the water. The gauge cocks are located in different altitudes within easy reach of the engineer, and by turning the lower gauge cock he can determine that he has got water as high as that gauge cock, and the second and third gauge cocks the same way. It is about eleven inches from the top of the crown sheet to the top reading of the top gauge cock. In other words, in railroad parlance, if a man has what is called "three gauges of water" he has eleven inches of water over his crown sheet. That would be the back part of the crown sheet, as the gauge cocks are on the back of your fire-box. There is some slope to the ordinary crown sheet but you take your reading from your highest point. "Three gauges of water" indicates eleven inches over the highest point of the crown sheet, approximately. In some cases the crown sheet slopes back towards the fire-door; some are straight. Where the engine is going down hill or around a curve the water would not wash off the crown sheet.

I am not familiar with the practice as to fusible plug on the New York Central, Pennsylvania, Baltimore & Ohio, or New York, [fol. 27] Chicago & St. Louis Railroads. My experience is limited to the Erie Railroad engines and the Erie output of the Baldwin

**Locomotive Company.** All the engines on the Erie were equipped with them—a blanket order to that effect—something like two thousand engines. During my term of service they were adopted. I could not tell as to whether there has been any change in that regulation with regard to the Erie since I left it. At the present time my knowledge as to whether the Erie uses soft plugs or not is no more than hearsay; I haven't seen them.

The water glass is not a round glass cylinder any more; it is flat, more for protection and safety. The height of the water stands in the glass. With an injector on, if your engine is standing still, you will see the water in the water glass go up very quickly. If you are working your locomotive and the engineer knows his engine and knows its condition, you won't see the water rising and falling in the water glass very much; it is bound to vary. Even when you are running it is bound to vary. If I was on a level piece of ground and the water stood absolutely still in the water glass at a certain height, I would think I was a pretty good engineer. If you would plug up your water glass at the bottom you would then close off the top and bottom of your water and the water is stationary. If you would close off the top part of the glass you would not have any reading on the water glass, your circulation stops. I would say the water would not disappear unless you open what is known as the delivery cock underneath to drain it out. If the pipe leading up to the water glass was plugged, your water would remain absolutely stationary in the water glass; no circulation. If you have an injector on, if your track is rough it is bound to change your reading a little in the water glass. If you are working the engine and shut it off, the water will go down in the water glass. If the engine were standing still and one or two injectors were turned on, the shifting of the water in the water glass is more noticeable; you are not using any steam and water in your boiler. It is the same way as in a house water boiler; when you go down and turn a cock it goes up and down until the water gets into the boiler, and after it is turned off it seeks its level. I wouldn't say the pressure coming up in the hot water system causes the water to rise and fall in the water glass any more than your water coming in varies it. In a serious case it races, goes up and down very, very fast. [fol. 28] As a rule, when your locomotive is foaming, it is a case where the only way you can stop it is to stop along the road and open up, blow off, which causes a change of water in the boiler. To an experienced engineer the foaming of water in the boiler, affecting the water glass, is promptly evident, and he should know what is going on.

If you had a gauge cock plugged up with scale, you would turn it on and wouldn't get any water. He could then go to the second gauge cock and see if he had water, and if he got the same result he would go to the third. Naturally he would have it there if he has water left. If you have the gauge cocks plugged up with scale you would not show water on the gauge cocks. The engineer that has had years of experience on a locomotive can tell very quickly whether the gauge cock is plugged up; if it wasn't, he would have blue steam, if he had low water. Blue steam does not necessarily mean low water;

it means it is falling down, where you have the gauge cock. As far as your gauge cock is concerned, the idea is it is lower than it ought to be; there is no water to that particular gauge cock.

I don't know anything about Baltimore & Ohio freight engines of the 2,500 type. The number of stay bolts changes with the type of boiler. Fifteen hundred would not occur to me as being excessive for the number of radial, stay and intermediate bolts in a freight engine.

The injectors are the means of getting water from the tender into the boiler of the engine. The fact an engineer stopped and took water and filled up his tank does not mean he has got water in the boiler, unless he has got an injector working. I never saw this engine after the accident.

If I examined a crown sheet after an explosion and found what is known in railroad parlance as a "peacock blue" mark around a certain area of that crown sheet, from my experience that would indicate low water. The only way an explosion occurs is by the entrance of comparatively cold water onto an overheated crown sheet; and, due to that, there is imprinted into the crown sheet at the moment of explosion this peacock blue line. That is imprinted at the height of the water at the time the boiler blew up.

The Court: Do I understand you — say that the only known and accepted cause of boiler explosions is low water so that the crown sheet could become exposed?

[fol. 29] The Witness: Where it shows blue, that is an indication of low water; and then your cause of the explosion is putting the water up on the crown sheet, the exposed crown sheet.

The Court: When the water gets low and uncovers the top of the crown sheet, the fire then superheats the crown sheet, the exposed part of it?

The Witness: Yes.

The Court: And when cold water is injected into the boiler, coming in contact with the superheated crown sheet, it immediately gives off a volume of steam?

✓ The Witness: There is an explosion so great something has got to give.

(Narrative continued:) (Witness is shown model section of boiler.) This outside sheet is known as a wrapper sheet and the inside sheet, which is three-eighths steel, is known as firebox sheet and might be known as the side sheet. It is the firebox sheet, crown sheet and side sheet combined. The inner sheet is the section that goes over the firebox, and these bolts are known as radial or intermediate. The lower ones are stay bolts. The holes in the lower bolts are in the position of tell-tale holes; supposed to be in the center of the bolt, I think it is an inch and a quarter deep. The bolt is drilled in to about the end of the thread, so that when the bolts break the water can go out of the sides and indicate a broken bolt. The tell-tale holes are put in bolts up to eight inches in length and under; in bolts eight inches and over they are not required by any regulations of the company. When I say fifteen hundred bolts more or less, these are the kind of bolts I mean. The crown sheet

reaches over and down, and the other is known as the outside sheet. These are the two sheets that are bolted together by these stay bolts, radial and intermediate. The water circulates between the two sheets, and that is what is called the water space, between the two. The wrapper sheet is the outside circumference to the extent of the crown sheet, and runs from the door sheet to the flue sheet. The flue sheet is a sheet in front of the crown sheet and into which the flues run. The fire comes out from the firebox up against this crown sheet and heats the water on the crown sheet and the sides, within the compartment made by the wrapper sheet and the crown sheet when bolted together. The flue sheet is from the barrel of your boiler to your firebox sheet. There are a large number of pipes, flues, [fol. 30] running from the flue sheet along towards the smokestack, varying in length to the size of your engine, and around them is water, and the water is heated by the fire that is pulled up through the flues and out the smoke stack. The heating surfaces in the engine are the part over the crown sheet, the part over the flues that run up toward the front of the engine, and your side sheets. The most efficient point for heating water is over the crown sheet.

Railroad people are governed by a law and the Interstate Commerce Commission as to broken stay bolts. They don't allow two broken bolts adjacent to each other to be used. Leaving out the qualification "to be adjacent" they allow five broken stay bolts.

I don't believe there is much difference in the pull or pressure on the side or radial stays, less reason for a strain on the radial side of it, in normal conditions, than there is on the top of the crown sheet or along the side. The curve of the crown sheet and the wrapper sheet, gives additional strength to the sheet, as a matter of mechanics. I would say that the breaking of two of the intermediate bolts would not be followed by a less disastrous situation than the breaking of other bolts. I would not think that the breaking of two bolts there would be less weakening to the crown sheet and wrapper sheet and the boiler in general, than the breaking of the crown bolts on top.

Q. Now, supposing after a tear or boiler explosion, the tear in the crown sheet was located by those who inspected the engine after the explosion, and suppose that that tear was not adjacent, nor did it come inward near the bolt or two bolts that were broken, but that the tear pulled out good bolts, pulled off the good bolts, you would have some difficulty, would you not, in coming to the conclusion that these other broken bolts were a contributing factor to that boiler failure?

A. I would.

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CHARLES E. McGANN, being recalled by plaintiff, further testified as follows:

Direct examination by Mr. Chapman:

In my examination of the crown sheet of that boiler, after the explosion, there was an electric weld at a point in that firebox. (After witness refers to papers.) The weld was on the three-fourth flue

[fol. 31] sheet, welded to the wrapper sheet, also door collar welded in at door sheet. As to its location with reference to the weld,—the crown sheet pulled off entirely from the side, tearing down both inside sheets, diagonally to the mud ring, and blowing over the back flue sheet at the top and pulling out fifteen bolts, and cracking the electric weld where the crown sheet was welded to the three-fourth sheet flue. After the explosion, when the sheet came down it tore out from the electric weld. It tore the electric weld when it fell, the force of it coming down tore open the electric weld. The crown sheet was forced down by the pressure of the steam in the boiler on the overheated crown sheet. The occasion for making the electric weld was putting in a three-quarters flue sheet, the application of a new three-quarters flue.

Cross-examination by Mr. Kinder:

The falling of the crown sheet was the cause of the crack in the electric weld. There was no evidence of any failure of the electric weld as a contributing cause of the explosion.

The electric welding in of sheets has proven very successful and just as strong as the ordinary sheet.

There was no evidence, from my examination, that the failure of the electric weld preceded the explosion.

Deposition of Patrick H. Bursee, taken at McMechen, West Virginia, January 4th, 1922, was thereupon read in evidence as follows:

PATRICK H. BURSEE, a witness called by plaintiff, being first duly sworn, testified as follows:

Direct examination by Mr. Chapman:

My name is Patrick H. Bursee. I live at 85 33rd Street, Wheeling, I am twenty-six years old and in the garage business.

I worked for the Baltimore & Ohio Railroad Company from about July until the 1st of October, 1920. I knew John Groeger in his lifetime. While I was working for the B. & O. I was working on the fourth division, as brakeman.

I recall the accident to John Groeger. On that day I saw him at Foster Tower. I was acting as brakeman on run No. 100 coming out of Clarksburg to Benwood. The engine was taking water at Foster Tower, and Groeger was on the engine. He got to Foster Tower [fol. 32] before our train did and his train was taking water when our train got there.

I got up on Groeger's engine. At that time there was no one else on the engine with him. Both the fireman and brakeman were on top of the tank taking water. I also saw the conductor around there.

When I got on board Groeger's engine I had a conversation with him about the engine. I observed the water glass, firebox, gauge

cocks and noticed the steam pressure. The steam pressure was around about 160.

Q. What, if anything, unusual did you observe about the water glass?

Mr. Kinder: I object.

The Court: Overruled.

Mr. Kinder: Exception.

A. The water glass kept working up and down all the time.

(Narrative continued:) It would go pretty near to the top and drop down practically to the bottom. It was making that movement just at ordinary—just like that—not fast, not slow.

While I was there I saw the gauge cocks of that engine operated. Groeger operated them. He operated all three of them. The bottom one and the middle one was wet and the top one was dry. I observed there was steam coming out of the firebox. There was enough steam coming out to obstruct the view, going up the boiler.

When I was on the engine both injectors were working. I heard them working. If they had not been working steam would not have been coming out of the bottom, or they would kick off. Both of these injectors were working.

While on the engine I saw the firebox door open and I noticed it was leaking up around the front, and the side—the fire was dead. You could hear the sizzling of the water hitting on the fire. When I opened the door steam came out of the firebox. With the door open there was a gush came.

I should judge I was on the engine about three to five minutes, something like that. They pulled away after I got off. Their rear end was on the main track and the engine right on the siding taking water and they had to pull up before we could get water. After their train pulled away we took water. Our train was No. 100 and [fol. 33] Greoger's 2541. We had a meet order to meet them at Foster. Our train was a freight train and I was front brakeman. After taking water we continued on to Benwood.

We came to Benwood, I went up to ask for a track and I was asked if I saw 2541 and I says, yes, I met them at Foster and they said she blew up. I went back to the scene of the accident on the wreck train. There was a number of fellows on it—train master McGann, master mechanic, wrecking crew, Conductor Hard. I wanted to go down and see it. As I was on there, Mr. Malone asked me if I could act as brakeman. They were short of brakemen. I said I was under the sixteen hour law, but I would work for them if he wanted me, I would stick around. Our run from Clarksburg to Benwood took close onto sixteen hours and when we came in we were about outlawed. I went back on the wreck train.

I saw the position of the boiler of engine 2541 and the point where the explosion occurred. I should judge the boiler was about three or four hundred feet ahead of the train, in the direction in which the train was going. The boiler went up and turned around

and buried itself in the ground quite a bit; it was headed just opposite from where it was going. The bottom part of the boiler was up; the whole top part of it was embedded in the ground. By the top part, I mean the smokestack, which was down in the ground. The crown sheet was up, and I noticed a sort of reddish brown, soot, scale on it. I couldn't say just exactly how much. I also noticed the stay bolts looked as though they were snapped off. There were several stay bolts; I didn't take notice as to all of them. While I was there I did not see any of the various parts of the engine, such as the water glass, steam gauge and injectors. I never heard whether those were found.

After I got there I saw engineer Groger at the undertaker's parlors at Crocker. He was dead.

Cross-examination by Mr. Kinder:

I left the service the last of September, 1920. I entered somewhere along about July, I think. After I left the service I went to Texas, working for the Texas and Pacific Railroad, as a machinist's helper. I have been braking for the B. & O. for the last four or five years. I also did some odd jobs. I worked at plumbing work but not for the railroad. I worked as patrolman for the B. & O. for over a year. I believe I did work over there as a grease packer at [fol. 34] one time; a good while ago. At the time of the accident I was employed as a brakeman. I am now in the garage business, selling cars, and have been doing that for three or four months. After I left the service I stayed in Texas about two months; then came back to Wheeling; and then loafed around a couple of months, doing practically nothing. I then went to work braking for the Pennsylvania and worked for them a couple of months, something like that, up to the first of February, 1921. I didn't keep much of a record of the time I worked. After leaving the Pennsylvania I loafed around and went into the garage business, which was about three or four months ago. From February, 1921, until three or four months ago I may have worked at odd jobs, different things, but mostly loafing around in Wheeling.

We left Benwood on September 1st on this trip, I think about 9 o'clock in the morning. Went to Clarksburg on No. 99. Called that night around 9 or 10 o'clock, on the 2nd, for No. 100 going to Benwood from Clarksburg. We are supposed to leave at 10 or 10:30. We left Clarksburg at something like 10:30—10 o'clock—we are called between 9 and 10 o'clock at night. It was on the trip from Clarksburg I was on first 100, and that was the trip that I passed Groeger at Foster Tower. We were going from Clarksburg to Benwood, which is something like 98 or 100 miles. This was an east bound freight train. I think it was just *the* opposite from the fourth division. I think it is just opposite on the Ohio River. I never went down that way many times. I think it is going east.

We were taking water at the main track at Foster Tower. We pulled up and stopped, we couldn't get by. They were going in an opposite direction from us. I don't remember how many cars

we had; somewhere around 35 or 40, something like that. When we got there Groeger's engine was in on the siding; some of his cars were sticking in on the siding. The engine was unhooked from his train and was about two, three, maybe five car lengths, something like that from the head end. His train was out on the main track. He was in the siding. I didn't notice if he had any part of the train on the siding. When we came up there our engine stopped right alongside of his. Brookover was the engineer. I don't know the fireman. I was the head brakeman.

I was riding in the cab as our engine and train came up there. That is where every brakeman is supposed to be all the time, on [fol. 35] the head end. Groeger was taking water as we came up there. I saw Groeger on his engine. The fireman and brakeman was on top of the tank taking water. I didn't notice any of my crew particularly at the time. The engineer goes into the telegraph office and the fireman goes down on the ground. I don't remember if they did on this occasion. None of our train crew got on Groeger's engine while I was on it.

I have known Groeger to see him ever since I worked on the B. & O. I didn't just know him so awful well, just met him on the railroad. I just called him Groeger, and met him on the railroad. I got off our engine and got on his. I said hello to him. I can't just recall what he was doing at that time, but he was fooling around doing something. I stayed on the engine from three to five minutes, something like that. I had no duty to perform on his engine. I was on all of the three to five minutes. I got off of Groeger's engine because I was afraid of it. If I had not been afraid I would have stayed on until he went back up to catch his train. I don't know how long I hung around after I got off. I got off and went over by the telegraph office, fooled around. I don't know just exactly what I was doing. Went back to the train. I don't believe they had finished taking water before I got off the engine. Neither the fireman nor the brakeman was on there when I got off. During the five minutes I was on there I was looking the engine over.

As to whether I make it a practice to get on an engine stopped out on the road to look it over,—I get off and get on and look at the water glass, such things as that. That is not a part of my duty as head brakeman on another train. I just do it for something to do. As to going in and inspecting the caboose—I go in and sit down there, look around and see what I could see,—not look over the air gauge, not that bad.

I said the top gauge was dry. I didn't test the gauges; Groeger tested them. The water was going up and down in the water glass, not fast and not slow. When she went down she would disappear, about to the bottom. She would not disappear; just about to the bottom. He had both injectors on. He did not turn them on while I was there; he had them on before I got on the engine, and they were on all the time I was on the engine. When I got off and went over to the telegraph office he had both injectors on and 160 pounds of steam. While I was there the steam pressure did not go up; stood about the same, then it dropped a little. He had a dead fire along

[fol. 36] in the front and along in the side. I opened the firebox. I did not stick any coal in the engine. I did not just exactly see this water gauge when I first stepped on the engine. I didn't break my neck to go up and look at it. I noticed it while I was on there. As far as I know, they were still taking water when I got off the engine. That engine was standing still there, she wasn't working when I was on the engine at any time. It was while the engine was standing still this variation in the water glass was going on.

When I got on the engine Groeger told me he was having trouble with it. He said he wanted to give it up at Moundsville and was ordered by the dispatcher to go on through with it and he said he was afraid of it. I said, "How is your water?" I don't know just how long after I got on the engine it was that he tried the gauge cocks; it was during the period of time I was on there. He tried it twice while I was on there. The first time it showed wet, the first one. The second time the top one wet, and second and third dry. The same thing the next time. All the time he had both his injectors working. The steam pressure hung around 160. I wouldn't imagine it would go up; they wasn't putting any coal on it.

I did not report this conversation with Groeger and my observation made on this train to anybody at all at any time. I said nothing to nobody. I went to Texas the last of September, 1920. I talked about that to Mr. Goodwin. I never said anything to anybody connected with the railroad company. I don't know when I first spoke to Goodwin about it; I have forgotten just now when it was. He heard I was on that engine and came up there and asked me for a statement. I should judge it was about a month ago; something like that. It must have been along in December of 1921 somewhere. He is the first man I ever talked to about it.

As I stated, I got on that engine and spent five minutes on it; made these observations; had a talk with Groeger; and got off because I was afraid of the engine. I completed my run and went back to the scene of the accident with the railroad officials. I was an employee of the B. & O. during the rest of September, went to Texas, came back, employed on the Pennsylvania and loafed around Wheeling in odd times here since. I never stated to anybody at any time, anywhere, anything about it until I stated it to Mr. Goodwin during the month of December, 1921—never said a word to nobody.

[fol. 37] I left the Pennsylvania because I got hurt. I do not have a law suit growing out of that. I had a claim and had an attorney—Mr. Chapman.

When I went out on that wreck train McGann, an official of the company, was there, also Creed Malone, train master. I didn't stay with them, or go around with them. I knew they were making an investigation about the accident and that the Federal government would make an inspection of this. I don't know whether they did or not; I expect they did. They generally always do.

I knew Groeger was married; I seen his wife and children on the street. I knew neither one of the other men on Groeger's engine to speak to.

While I was on the engine I didn't take notice if he had the blower

on or not. That is one of the things I didn't look at. I don't remember if I heard it.

My fireman and engineer didn't get off their engine to get on his. I don't remember as I said a word to my fireman or engineer on the rest of that trip about that engine.

I finished my run over here in Benwood. After I was on the train, Creed Malone asked me if I could act as brakeman, they went out short-handed. I said nothing to Malone about being on Groeger's engine, or to McGann.

When I went over the track to the tower, all there was between me and Groeger's engine was a single road track. I stayed at the tower until they got ready to go. I helped get water for my engine. I don't remember how long after I got off the engine Groeger left. I paid no more attention to the engine, although I was afraid of it. After what he told me it was about time to get scared of it. I did not talk to the fireman or head-man on Groeger's engine; neither one of them was in the cab; they were on the tank.

I don't remember as there was a passenger train due along there about that time. We left Foster and went right into Benwood and didn't pass anything on the way.

A thirty-one order is a meet order. The engineer had a meet order for Groeger's train. He told me they had a meet order with 2541 at Foster.

The steam pressure was around about 160 and about the same when I got off as I got on; maybe dropped a little bit. When I got on he had both his injectors on. I don't know how long they had [fol. 38] been on when I got on. I don't recall how long after I got on he tested these gauge cocks the first time but between three and five minutes; tested them twice. The second time he tested them right before I got off.

My engineer was on his own engine, I think, when I was on Groeger's engine. I don't know where they were after I got off. I didn't look around to see where they were. I don't remember if our engine was 2518 or not.

I did not then stop in the telegraph office for a little talk; I never talked to the telegraph operator.

I don't remember whether the blower was on or not. I should judge it was on a little bit. I say that because the steam would be jamming out of the rear end, or out of the door, if it had not been. If it was clear on, you could hear it. It may have been on partly. I did not examine the air pumps. I wouldn't say they was not working.

I had been around an engine quite a bit. As to whether it is not a physical impossibility for a steam to come out of the fire door with the blower on and the air pumps working,—I have seen it come out. There was a little gush of steam came out when the door was opened. I didn't have my face close to it. I grabbed hold of the chain and opened the door. Groeger told me the engine was leaking bad and that is why I opened the door. I opened the fire door to look at it. I said I grabbed the chain, but it might have been the air door. I mentioned the chain for lots of engines have got chains on. Just

grab hold of the chain. I don't remember that this engine did not have a chain on the fire door.

I didn't notice this blue line on the crown sheet there. I just took a look at it. I didn't see any.

I don't remember that I saw Groeger's train leave. I paid no more attention to it.

I heard about the accident at the yard office in Benwood.

I asked the yardmaster for a track. Bill Steele was the yardmaster at the time—I ain't sure. It was a brakeman standing outside who told me there had been an accident. When I went to Steele to ask for a track I was told 2541 blowed up. I got my track and lined up and opened the main track switch and let him in, and the wreck train was called and when it was ready to pull out I got on.

(Adjournment to following day).

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[fol. 39]

9.30 a. m. Tuesday, April 25th, 1922.

CHARLES E. McGANN, recalled as a witness, further testified as follows:

Direct examination by Mr. Chapman:

As to the broken stay bolts which I found on my investigation of this boiler, an inspection of that boiler prior to the explosion would have disclosed the broken condition of those stay bolts.

If I had known that on one side of that firebox three of those broken intermediate or radial bolts were within a circle of eight inches, as I testified, I would not have allowed that boiler and locomotive in service that day. If I had known that two of those bolts broken were adjacent, I would not have allowed that boiler in the service to which it was put that day.

Cross-examination by Mr. Kinder:

From my examination of this boiler and crown sheet after the accident, I was of the opinion that the broken bolts spoken about, if broken prior to that explosion, had nothing to do with the failure of the boiler whatever.

It was thereupon stipulated and agreed by and between counsel for plaintiff and defendant that John C. Groeger was thirty-five years of age at the time of his death; that his average earnings for the year previous to his death were \$180 per month; that he was in good health, robust and strong; that his widow, Freda Groeger, was thirty-one years of age, and that he left surviving him two daughters, Irene, ten years of age, and Gertrude, seven years of age; that the widow and two children were entirely dependent upon him for support; that the said John Groeger's expectancy of life at the age of thirty-five, at his death, was 31.7 years; that his widow is the administratrix and plaintiff in this action.

It is further stipulated and agreed that the fireman and head brakeman who were on the engine with Groeger at the time of his death were also killed by the explosion of the boiler at the same time as was Groeger.

Plaintiff rested.

[fol. 40] Thereupon the defendant moved the Court to arrest the testimony from the further consideration of the jury and direct the jury to return a verdict for defendant; which motion was overruled by the Court; to which ruling defendant then and there duly excepted.

CHARLES A. KARNELL, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is Charles A. Karnell. I live in Cleveland. I am supervisor of boilers for the New York Central Railroad, and have been in the railroad business twenty-six years, practically twenty years of which have been with the New York Central. I have charge of the 635 locomotives in the third district, and my work brings me in daily contact with locomotive boiler conditions and boiler equipment, also the design and construction of boilers and their maintenance and upkeep. There are four districts on the New York Central, and between 2,500 to 3,000 locomotives operating on that system.

✓ The fusible plug is not in use on the New York Central System because it is not practical. Due to the water surging back and forth over locomotive crown sheets, we find that the tin in the fusible plug will fuse and melt, therefore permitting the water to get into the firebox and putting out the fire. The movement of the locomotive in ordinary operation, with plenty of water, causes a movement of the water over the crown sheet back and forth, so that on a grade, or for other reasons, a fusible plug is impractical because it is bared; that is to say, the water leaves it at times due to the ordinary operation of the engine. When a plug blows out it blows out through the firebox, permitting the water and steam in the fire chamber. If the fireman at that time happens to be putting a fire into the fire door, he does not necessarily get the fire and steam; but it would tend to put the fire out. I wouldn't say as to injuries happening to the fireman.

Q. One other question, Mr. Karnell. I have here a model—concerning which, if the Court please, other evidence will be intro-[fol. 41] duced—it is drawn to a scale, an eighth in size, of a crown sheet with the door sheet and the flue sheet. The hole in this end is the fire door. On that line you will find, Mr. Karnell, that a blue line has been platted, which you may assume was the location

of the blue line found on the crown sheet after the explosion. There are also platted on this model certain points here which you may assume indicate the location of certain stay bolts which it is claimed were broken prior to the explosion. Will you assume that the failure of the crown sheet, according to the examination of the crown sheet, began at the rear top of the crown sheet about at the junction of the door sheet with the crown sheet and extended towards the engine in a downward direction but did not involve either of those three stay bolts, but the rupture occurred there in an area controlled by them or near them, and that the failure of the crown sheet as found after the explosion—the line of failure did not occur through or in the immediate territory of these three stay bolts or this one (indicating on model). Will you give us your opinion as to whether or not the broken bolts as indicated in the area on this model had anything whatever to do with the crown sheet which failed and contained this blue mark on top of it?

A. Why, the failure of the crown sheet is due to the overheating of the plate not being able to withstand the pressure above it. That, of course, would cause it to release off the stay bolts, the crown stays. Now, then, the crown stays on the top were solid, they were not broken, but on account of the very heavy plate they slipped off the solid stays, therefore letting out a large volume of pressure and in doing that caused the explosion. When the explosion started it brought down the rear; the front end was the first to go; the three stay-bolts as they are marked as broken there on each side, were not a contributing factor to the explosion, due to the fact that the solid stays had to let go first before they could come to this.

Mr. Kirder: I may say to the Court that I have called Mr. Karnell out of order so that the evidence is not in that we expect to show.

(In response to questions by the Court:)

I don't know how long fusible plugs have been known to those skilled in locomotive construction and operation or how long they have been used on such engines. I have had knowledge of them [fol. 42] for twenty-six years. They were used off and on; they were on test, practically. I keep myself informed of the practices of other railroads and other departments of railroading than my own. The only case that I know of a fusible plug being used was on the Chesapeake & Ohio. They were used there in 1910 on that road for about four months, and during that time I had occasion to work on engines having those plugs, and we had trouble, we had to remove them from time to time and refill them because of the metal fuse running out, as the tin in them would fuse at 446 degrees of heat. The temperature in the boilers at 200 pounds pressure is equivalent to 388 degrees of heat; so that with 466 degrees fusing point of tin, we only have to use 58 more degrees. I wouldn't say as to whether they are using them on that road today or not. As a rule, in the general railroading world, all the railroad systems, they are not used. They have not been accepted and used by master

mechanics and locomotive engineers as standard equipment in locomotive service.

Cross-examination by Mr. Chapman:

✓ They are universally used in stationary boilers.

Assuming a fusible plug was applied, it would go at the highest point of the crown sheet and would project about an inch and an eighth above the crown sheet. The metal in that fusible plug is much more fusible and melts quicker than any part of the crown sheet.

In actual operation, a fusible plug placed at that point on the crown sheet, projecting above the crown sheet, as soon as the water got down to the fusible plug and laid bare the top of that fusible plug, the soft metal in that plug would melt and allow the escape of all pressure from that boiler, and in that way it would prevent any burning or overheating of that crown sheet.

WALTER C. HEDEMAN, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is Walter C. Hedeman. I live at Baltimore, Maryland. I am in the mechanical engineer's office of the Baltimore & Ohio Railroad Company. I have been with the road since March 3rd, 1903. I started in 1900 at the Maryland Steel Company, building [fol. 43] marine engines at Sparrows Point. During my service with the B. & O. I worked in the shop on locomotive construction for six years; I then obtained a position in the mechanical engineer's office, as draftsman, and just went right up the line finally to boiler design and construction, and for the past five years have had general charge of boiler design and reinforcement for boilers when they were required, and I pass on all questions regarding the strength of locomotive boilers on the B. & O. Railroad.

Engine 2541 is the type of engine known as E-27. That just means the model, the same as you say a 1916 automobile, or certain model. That was built by The American Locomotive Company, which is considered the best in the country. This 2541 is a model with which I am familiar.

At your request I prepared a model of a crown sheet. When I was first asked to get into this case it was brought to my attention by the assistant claim agent, and I had one of the draftsmen take the blueprint and lay out these sheets from the print to scale, approximately one-eighth size, and had them put together.

Referring to the model, Defendant's Exhibit 1, this circular sheet on top is the crown and side sheets made in one piece secured to the mud ring. This is known as the mud ring because that is the lowest part of the firebox where the mud accumulates, and there is washout holes at each end of them to wash that out. The hole represents

the door hole in the door sheet, and this is the door hole in the back head. There is a neck on here where this is joined to this sheet. Underneath the crown sheet is the firebox, and right on the bottom is the grates, which would be supported. The whole area of grates is there, and the coal is thrown in on those grates and the draft comes up underneath and the flame and gas goes out through the flues to the front end and out the stack.

Defendant's Exhibit 2 is a very good illustration of a locomotive firebox. You see the grates and above them the coal fire going up over the arch brick. There are four arch tubes in there supporting bricks. The bricks are used to throw this flame back here first rather than let it go through the flues without getting the benefit of the combustion and getting all the heat out of the coal, and that throws a most intense heat up on the crown sheet. Now, above the crown sheet you can see the water; this line (indicating) is the water. This, to my mind, brings the idea of a locomotive firebox out more clearly by way of a picture or print than anything I have ever seen. [fol. 44] I don't think anyone could describe it any handier than you can see on this picture in a few minutes.

In explaining Defendant's Exhibit 1, I will begin with the general construction of the boiler. They are made from flat sheets received from the mills. They are absolutely flat and are rolled to this shape (indicating) before they are put together, so that there is no strain here in joining the sheets. It is metal to metal. This crown side is in one piece and rolled to this contour. That is the inside firebox sheets. The rear sheet here of the entire firebox is known as the door sheet; the front sheet of the firebox is known as the rear flue sheet. There is a rear flue sheet to the front flue sheet in the front end of the boiler, and the front flue sheet would be drilled and bored with holes for taking the flues, and the flues would extend from the back to the front for the gases to go through. The flues in this boiler are fifteen feet ten inches long. The front flue sheet is three-quarters of an inch thick and the back sheet half an inch. The flues are expanded in the sheet to prevent leaking; the front end is expanded rolled; and on the back end there is a copper ferrule put in here and the flue is fitted over, rolled over. In addition to that, it is electric welded all around to keep it from leaking. I mentioned the mud ring. The outside sheets are then rolled to shape. This is known as the wrapper sheet: the wrapper sheet is sometimes called wagon top. It is the shape of the old Canistoga wagon. These are the outside sheets—left and right side, and what is known as the back head, which is similar in shape to the door sheet; and then there is the outside throat sheet. This (indicating) is the barrel. There is a first and second course to the barrel. Those sheets are circular. Then there is the smoke box, and the front flue sheet. That boiler would have 282 flues through those sheets. When these sheets are shaped, this outer shell is put together on the floor, the back head, the wrapper, and the throat, and this is put together on the floor separately and is then placed inside here (indicating). Now, there is a double row of rivets all

around here, sealing the inner and outer sheets together at the mud ring. The mud ring is made of cast steel.

The water is in the space from the mud ring to the top and gets up in the barrel above the flues. The gases and flame go through the flues and the water is all around them on the outside, and that [fol. 45] heats the water and generates the steam. The smoke, heat and gases escape into the smoke box and then out through the stack.

The holes represent the holes for the stay bolts. It is necessary, on account of these sheets being comparatively flat, to be tied together to prevent them bulging out; and they are fastened together with what is known as stay bolts. The full size model shows it better. That model is full size as regards the thickness of the plate and spacing of the stay bolts. That model was prepared by me to show the location of the particular bolts and is an exact representation of the arrangement including the size of the crown and wrapper sheets and stay bolts in engine 2541. The boiler makers laid that out from the blueprints of that particular boiler. They had to have something to make it by and that is what they made it by, right to scale. The one sheet is three-eighths thick, of firebox steel, and the other is nine-sixteenths, and the stay bolts are screwed in both sheets and riveted over on the outside to make them tight and to hold them together. When this boiler gets pressure on there is a tendency to force these sheets apart, and these bolts must be in there to hold those sheets together. The bolts are what we call "in tension." There is a constant pull on them like that. I might mention here that the law only allows us a stress on stay bolts of seven hundred pounds per square inch, which is the lowest stress allowed on any part of the boiler. In other words, you have to make your stay bolts safer than anything else. I might mention that this boiler has a total of 1,464 stay bolts, that is, counting all these in the door sheet, side, crown and throat. These holes represent the stay bolt location, each one would represent one of these bolts.

Defendant's Exhibit 3 is a photograph of the back head of a locomotive showing the gauges, throttle, apron and water glass; and is correct as to engine 2541 as regards the water glass and gauge cocks. (At request of counsel witness marks on exhibit location of first, second and third gauges. The hole at the bottom of this picture is the fire door. The tube on the right hand side is the steam pipe to the right injector, and the one on the other side is the steam pipe to the left injector. This shows the throttle lever extending across. It is connected up to a throttle rod which extends through the back here into the dome, and the throttle is in the dome and when he pulls this lever this way, that opens the throttle in the dome and lets steam come down through the steam pipe up to the front end and [fol. 46] down to the cylinders to move the engine. As you look at the picture, the right hand side is the engineer's side of the cab.

(Defendant's Exhibit 3 offered and received in evidence and attached hereto and made part hereof.)

Defendant's Exhibit 4 is a photograph taken close up to this door hole on the back here, and you see very plainly the arch brick which

are referred to. These are the arch brick and these are the arch tubes that support the bricks. As I explained before, the flame comes up and strikes the brick and goes over the rear end and then through the flue.

(Defendant's Exhibit 4 offered and received in evidence and attached hereto and made part hereof.)

I plotted on Defendant's Exhibit 1 that portion which was reported as being peacock blue. It is just the front end, and is the area enclosed by the heavy blue lines.

There were reported seven defective stay bolts. They are located here on this exhibit, three on the left side and three on the right and one at the front end in the fourth row from the front.

I have seen the Railroad Company's report indicating the point of the rupture, where it started and where it ended. Generally, the rupture occurred, according to the report, in the third row from the center at the back, and tore down towards the door hole and then tore down this side (indicating), and tore diagonally down on each side. First, the report shows that the crown sheet pulled off the bolts. That is called sagging, due to the metal getting red hot and stretching. The report shows that there were four holes at the front which were elongated; by that we mean distorted or stretched out of shape. They were larger than the actual heads on the stay bolts which were in that crown sheet, showing that they did stretch. Then this sheet pulls off those bolts and goes down and presents such a large area unsupported that there is nothing left then except for the sheets to tear, and the tear took place, it started up in the rear, the third row from the center. An examination of the bolts after the explosion and an examination of the crown sheet will indicate right on the metal this pulling motion of the sheet off the bolts, the heads of the bolts indicate that, and the bolts in the crown sheet will be elongated.

[fol. 47] Q. Now, Mr. Hedeman, having that in mind and having in mind the location of those seven bolts, in your opinion as a boiler expert, could those seven bolts be considered as even a contributing cause to that boiler failure?

A. Absolutely not.

(Narrative continued:) Fusible plugs are not used on the Baltimore & Ohio Railroad Company's engines. We have approximately 2,700 engines. The system extends to St. Louis, Chicago, Philadelphia, Baltimore, with numerous branch lines.

I have made inquiries on the question of the use of soft plugs on locomotives other than the Baltimore & Ohio.

Fusible plugs are regarded as an encouragement to the engineer to not keep careful watch on his water, not keep as careful watch on the water as he would if he didn't have a fusible plug. In other words, he would rely to a certain extent on that fusible plug blowing out when the water got low, and if he wouldn't have the fusible plug he would be very careful with his water and watch his gauge cocks

and water glass. When the fusible plug blows out the water and steam come out at the front end of the crown sheet and it blows it down on the fire.

Cross-examination by Mr. Chapman:

The B. & O. is the only railroad I am working for. I have not seen a fusible plug in use on the boiler of a locomotive engine. I know the purpose of it. Its purpose is when the plug would be exposed and not covered with water the soft metal would melt and come out and allow some water to escape. The plug won't prevent the water from getting down to the top of this crown sheet; it would give warning.

With a fusible plug in this boiler at the time of the explosion, all pressure within that boiler would not have been released by the action of that fusible plug before the water could get low and leave the peacock blue mark on the top of the crown sheet. When the fusible plug metal melted it would blow steam and water down and give warning. Theoretically, it would release the pressure in that boiler, but it would be negligible through that small hole. The force of the steam going through the holes in that fusible plug would be as nothing compared with the blowing up of that boiler. When the fusible plug blows out it gives warning that the water is low. It is self evident [fol. 48] that the danger of a fusible plug blowing out is nothing compared to the danger of the boiler blowing up.

When the fusible plug blows out that lets enough steam and water into the firebox to deaden the fire, and the engine can't be operated thereafter; they have to take it in, draw the fire, kill it and take it in. Whenever that happens the engine and train itself comes to a standstill and they stop and call for help. That would be the consequences.

Q. Mr. Hedeman, with the fusible plug installed on this boiler at that time would that have prevented the burning of this crown sheet as you have described it here?

Mr. Kinder: I object to that.

The Court: He may give his opinion, whether in his opinion it would have prevented the burning of the crown sheet as indicated by the peacock blue line.

Mr. Kinder: Exception.

A. That would depend on whether the plug properly functioned.

The Court: What do you mean by properly functioned?

The Witness: Answer the purpose for which it was designed. It has been testified that these plugs become inoperative due to accumulation of scale on the plug and that they really burn out and melt when there is no low water.

Q. Mr. Hedeman, my question is, assuming that the plug was kept clean and no scale allowed over it, and that that plug functioned by the soft metal melting before this crown sheet was touched, would

that have prevented, in the proper operation, the burning of this crown sheet and the explosion of this boiler?

**Mr. Kinder:** I object to that.

**The Court:** Objection overruled. He may give his opinion and answer that.

**Mr. Kinder:** Exception.

A. Well, if the fusible plug answered its purpose the soft metal would melt out and steam and water come through.

[fol. 49] Q. My question was, would that have prevented the resulting burning of that crown sheet and the blowing up of the boiler?

A. Under those conditions, Mr. Chapman, we must assume that the water only got so low as to just bare that fusible plug, and due to the slope of that crown sheet (refers to crown sheet of model)—this crown sheet is three inches higher in the front than in the back; that is, compared with a horizontal or level line. Now, the fusible plug, if one were used, would be in the first row and naturally that is as low as the water would get, just to that point (indicating on model), and you would still have water here, and if the fusible plug functioned and blew out that would give warning when the water just got to that point. The rest of the sheet would be covered.

(Narrative continued:) If there was enough pressure on the boiler, when that plug blew out it would blow steam into your fire and practically put out the fire. Assuming there were 160 pounds pressure on the boiler when that plug melted out, the continual flow of the steam through there would kill the fire.

Q. And that would have prevented this boiler explosion, would it not?

**Mr. Kinder:** I object to that.

**The Court:** Overruled.

**Mr. Kinder:** Exception.

A. I think I have stated that rather clearly, that the fusible plug would give warning and blow down on the fire, the steam would blow down on the fire.

**The Court:** And would put the fire out and relieve the pressure in the boiler, wouldn't it?

**The Witness:** It would kill the fire and relieve the pressure. I think that it understood, your Honor.

(Narrative continued:) The rules and regulations of the Interstate Commerce Commission forbid locomotive boilers to be used if more than six bolts are defective; and if two of them are side by side it is a rule of inspection that they must be repaired before they are used, even if there is less than six. We expected to conform to that. There is a penalty prescribed by law.

If the bolts were broken as they are marked on this model, two of them being adjacent, and the third one near them, theoretically

[fol. 50] those broken bolts would reduce the resistance or the strength of that boiler. Theoretically, the broken crown bolt which I have marked as being broken, would reduce the strength of that boiler for internal resistance. As this particular point where these bolts are broken is the strongest part of this fire-box, crown or stay sheets, for this reason: that it is on what is known as the radius. A man don't have to be a mechanic to know that a sheet bent like this will stand more pressure than a flat sheet. That is why I say theoretically only it reduces the strength because it is in the strongest part of the firebox. I can qualify it by saying that the A. S. M. E. code, that is, the American Society of Mechanical Engineers code, for building boilers, allows you certain strength for a circular furnace. This portion of the firebox is equivalent to a circular furnace and has strength of its own without the bolts. I may also mention at this particular point that there is the greatest expansion up here in this way (indicating), and bolts break here more frequently than in other places, but they don't affect the strength of the firebox perceptibly, that is, that you could notice it, because of the curvature of the sheet. It is equivalent to a board placed flat with pressure on it, or placed edgewise. Of course, that is going from one extreme to the other. Or we will say a flat surface or a curved surface. This is much stronger this way than if it is just flat, (indicating). The same here on this firebox; that is stiffer along here than it is here (indicating).

As to whether it is more serious with two broken bolts adjacent than if they were scattered over a large area for the internal resistance of that boiler, I will give you my personal opinion on that as an engineer. Two adjacent broken stay bolts on the curved portion of that sheet would not be as serious as one broken bolt on a flat sheet.

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A. R. AYERS, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is A. R. Ayers. I am a resident of Cleveland.

I am superintendent of motive power of the New York, Chicago & St. Louis Railroad, also known as the Nickel Plate, which extends from Buffalo to Chicago. I have been in the railroad service nearly [fol. 51] twenty-two years, about fifteen years of which have been devoted to the questions relating to boiler construction and maintenance. My duties as superintendent of motive power are design, construction, maintenance and somewhat operation.

The fusible plug is not in use upon the locomotive boilers of the Nickel Plate Railroad. During the course of my connection I have made a somewhat casual investigation, not particularly searching, into the extent of the use of fusible plugs on locomotive boilers. Without any definite figures to support my answer, it is my opinion that the use of the fusible plug in railroad work is not very general.

The American Railway Master Mechanics Association is now a part of the American Railway Association as a mechanical section. Prior to that time it was an association of railway motive power officials, that is, the master mechanics or similar officials of the various railroads had an association, in which they met and discussed their problems, made reports and recommendations, and, in addition, adopted standard practices and designs. Those standard practices and designs were not compulsory but they represented the consensus of opinion as to what was the best practice. This American Railway Master Mechanics Association comprised representatives of nearly all the railroads in the country.

According to the proceedings of the American Railway Master Mechanics Association, they passed a resolution in 1899. Defendant's Exhibit 5 is a copy of the resolution as it appears in the 1917 and '18 proceedings of the American Railway Master Mechanics Association. It was adopted in 1899, and those things are carried forward from year to year in the proceedings. That was copied correctly directly from a printed copy of the proceedings, and reads as follows:

"Resolved that it is the sense of the American Railway Master Mechanics Association that the use of fusible plugs in the crown sheets of locomotive fire boxes is not conducive to the prevention of the overheating of the crown sheet."

Mr. Kinder: In view of the fact that the witness has read the resolution we will not offer it. That is all a part of the record.

No cross-examination.

[fol. 52] ROBERT CECIL, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is Robert Cecil. I live at Holloway, Ohio.

I have been employed by the Baltimore & Ohio Railroad Company and was employed by them in August of 1920 as machinist and inspector. As inspector, it was my duty to inspect locomotives and make reports at various times of their condition.

In connection with inspection of locomotives and in the ordinary routine in August and September, 1920, it was the custom to inspect an engine monthly. The purpose of the inspection was for Federal forms. When the inspection was made of the various parts of a locomotive, a report was made based on that inspection, under oath, to the Federal government. That is required once a month.

As to monthly locomotive inspection report, marked Defendant's Exhibit 6, I took part in the inspection of the engine, report of which is made on that form, and my name is on that form. The report which I made on that form was made under oath. The original was forwarded to the Federal inspectors. I inspected the

mechanical parts on that engine. I inspected both the injectors and found them in good condition. That inspection was made on August 7th and the report was sworn to by me on the 11th, 1920. I had nothing to do with the washing of the boiler, but I tested the gauge cocks and removed the water glass, cocks, splinters and cleaned the cocks. I had nothing to do with the condition of the stay bolts and crown stays, and so forth.

When an engine comes in from a run, in the ordinary process of our business, the engine is inspected at the conclusion of the day's run. When the engine comes in to the terminal the engineer who has charge of the engine on that run makes out a work sheet in which he notes the things that ought to be done to the engine before it is taken out again. In connection with that report, I, as inspector, also make an inspection of the engine and determine what its condition is.

I made an inspection of my particular part of this engine on the 2nd day of September, 1920. Defendant's Exhibit 7 bears my signature at the lower left hand corner. The parts of the engine [fol. 53] I was responsible for were the machinery and running gear. I did not go into the question of injectors or gauge cocks on that inspection. They just see that it was suitable for service there. There wouldn't be any test, only just to see that they were suitable for service. They would be tried to see that they were in operation. The foreman, W. O. Kennedy, was the man that o.k.'d that.

No cross-examination.

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J. W. BREWER, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is J. W. Brewer. I live at Holloway. I am employed by the Baltimore & Ohio Railroad Company and was in September, 1920, as boiler maker. Part of my job is inspecting boilers. Once a month the boiler inspection is made, the report is sworn to by the inspectors, and forwarded to the government.

Defendant's Exhibit 6 is the form of report that was made on engine 2541 in August of 1920. I didn't wash the boiler myself but I know it was washed. Here is where we start here, with "11. Were steam leaks repaired? Yes." "Condition of stay bolts and crown stays. Three broken." I renewed those; it says "Three renewed." The condition of the flues and fire-box sheets was good. Condition of the arch good. We didn't use any fusible plugs on that engine. My signature is at the lower part there, and I made that report under oath. On August 7th, the date of this report, there were three broken stay bolts, which, to my knowledge, were fixed. Those were the only broken stay bolts in the engine at that time.

Cross-examination by Mr. Chapman:

I myself made an inspection to determine those broken stay bolts. I determined it with a hammer. I did not renew those broken stays; we have a gang that renewed them. I know they were renewed.

(Counsel for defendant offered in evidence Defendant's Exhibits 6 and 7 which were received in evidence and are attached hereto and made part hereof.)

[fol. 54] J. W. HAMILTON, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is J. W. Hamilton. I live at New Martinsville, West Virginia.

I am employed by the Baltimore & Ohio Railroad Company as engineer and was so employed in September, 1920.

I had engine 2541 on September 2nd. I was the last engineer that had the engine before Mr. Groeger took it out on his run on the 3rd. At the conclusion of our run we make out a work report of the condition of the engine. That report (Defendant's Exhibit 8) refers to what defects have occurred during the time we have been operating the engine. I made out that report at the conclusion of that run.

The run ended at 1:30 p. m. of the 2nd day of September. I noted on that report what defects the engine developed during the run. The defects are, "Clean out the flues; refill all grease cellars on the left side." The grease cellar is the bearing at the wheel, the axle. The next one is, "Tighten left steam chest cover," which is down where the piston valve goes in and out. The next is, "Clean out oil cups on air pumps." Those are defects I found with that engine that developed on that run.

The condition of the injectors on that run was good. The gauge cocks was good and working. We make a report on injectors and gauge cocks and water glass valve and the cylinder block and all these things that are set out here, and write in what their condition is. I write this in when I get through with my run. This is my hand-writing and signature down there. It says, "Condition of injector, right and left, good." That was the condition of them. The condition of the water glass, gauge cocks and valves was good. The cylinder packing and rod packing doesn't have anything to do with the boiler. The condition of the driver wedge boxes, air sanders and bell ringer was as indicated on my report.

When I operated that locomotive she was a good locomotive, one of the best we had.

[fol. 55] Cross-examination by Mr. Chapman:

On the day prior to the accident I made a run with this locomotive from Brooklyn Junction to Holloway. On that trip the sight glass

feed indicated the level of the water in the boiler at all times, and did not fluctuate from the top down to the bottom at all that I noticed. It was steady throughout that trip.

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W. O. KENNEDY, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is W. O. Kennedy. I live at Holloway, Ohio.

I am employed by the Baltimore & Ohio Railroad. Holloway is a terminal. In September, 1920, and prior to that time, I was employed as roundhouse foreman, and as such the various reports, including the work which was done on the machinery end of engines came under my supervision. By the "machinery end" I mean the running gears, injectors and the rods.

Defendant's Exhibit 8, locomotive inspection report, engine 2541, dated September 2nd, 1920, bears my signature.

As roundhouse foreman, so far as the machinery is concerned, and as foreman, it was my duty to inspect and check up the work that was ordered for a particular locomotive; and I did that in regard to 2541 on the 2nd day of September, the date of this report. The report sets out the work that was done on the engine, and the names on the right hand column are the names of the men that did the work. Before signing a report like that I see that the work is done. This report also describes the condition of the injectors, water glass, gauge cocks and other parts of the machine, and my signature on that shows I have checked that up.

(Counsel for defendant offered in evidence Defendant's Exhibit 8, which was received in evidence, and is attached hereto and made part hereof.)

No cross examination.

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[fol. 56] ALBERT HOOPER, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is Albert Hooper. I live at Holloway.

My business is that of boiler-maker for the Baltimore & Ohio Railroad Company, and I was employed as such in September, 1920. By "boiler-maker" I mean a man who is engaged in and about inspection of boilers. When an engine comes into a terminal various parts of the engine are inspected by various departments.

Defendant's Exhibit 9, locomotive inspection report on 2541, dated September 2nd, 1920, is a report in connection with the boiler of that engine. I made that report out and it bears my signature. I inspected the boiler on that day.

By "inspection" I mean we go over the whole boiler, go around it, that is on all inspections, go right around it and look for broken stay bolts, cracks, seams or anything that is leaking in the fire box. An inspection is made in the fire-box. That inspection is made to ascertain whether there are any leaks in the fire-box.

On this day I didn't do a thing in regard to the fire-box—no leaks.

Around the mud ring and for eight rows above the mud ring of the stay bolts they have telltale holes drilled in them. If a bolt is broken in any of those rows those telltale holes permit the escape of water or steam, so that when the stay bolt is broken there it is apparent from the escape of steam on the outside of the boiler; that is what it is for.

My inspection with reference to those bolts showed they were all right.

Cross-examination by Mr. Chapman:

As to the bolts in that fire-box, I made an inspection of nothing only the ones that have telltale holes in them, that had inspection. I did that personally. The radial bolts or bolts toward the crown stays haven't got telltale holes in them. You can't make an inspection of those at that time on account of the leaking. To make an inspection of those they have to use a hammer on them, test them with a hammer.

[fol. 57] Redirect examination by Mr. Kinder:

When an engine is "formed" it means the arch has to come down on all of them, the whole arch has to come down, the fire-box cleaned and the flues blowed and inspected, and you have got to go over every bolt in the boiler with a hammer. That is formed for the purpose of report to the government every thirty days.

(Counsel for defendant offered Defendant's Exhibit 9 in evidence, which was received and is attached hereto and made a part hereof.)

W. J. DIXON, a witness called by defendant, having been previously sworn, further testified as follows:

Direct examination by Mr. Kinder:

My name is W. J. Dixon. I live at Holloway, Ohio.

I am employed by the Baltimore & Ohio as Assistant Master Mechanic of the Wheeling station.

In connection with the operation or maintenance of engines, each engine is inspected after its run. The engineer makes a report of the defects noted by him and also the inspectors make out separate reports. The work that is reported by both the engineer and inspectors is copied off on to what we call work cards, they in turn are turned over to the foreman and he distributes those to the various workmen according to the work designated on the card, and when the work is completed, that is checked off on these reports made out

by both the inspector and the engineer and the report is approved by the foreman in charge. That is known as the locomotive inspection report. The boilers are washed out down at Holloway; we keep a book record of them.

(Witness handed book.) This is the book record. I have examined this. The record shows that it was washed on August 5th, according to form 1047-A, which is the monthly form, and which has been marked Defendant's Exhibit 6. The boiler washout record shows that the inspection contained in the form was made on the 7th of August. The record shows it was washed at Holloway on August 21st. The record shows it was washed next on August 30th at Holloway.

This engine ran between Holloway and Brooklyn Junction. There are no facilities for washing engines at Brooklyn Junction. They [fol. 58] wash them at Benwood sometimes. This record only applies to Holloway, and shows the boiler was washed on the 5th, 21st and 30th of August, 1920.

In the use of a boiler the water contains more or less solid matter which in the process of being heated in the boiler causes the solids to precipitate and be thrown down in the form of mud, sludge, and this settles mostly down around the mud ring in the fire-box; also a certain amount accumulates in around the barrel of the boiler and the flues; also ordinarily a small accumulation of scale forms from the chemical action set up from the different properties of the water. Therefore it makes it necessary that the boiler be washed out at intervals to remove this mud and accumulation of scale. That is done by plugs located about the boiler, the barrel of the boiler and about the fire-box and back head, over the crown sheet, and also in the arch tubes on each end are plugs from an inch and three-quarters up to two inches in diameter. Those are screwed into the sheets of the boiler and when an engine is taken in for boiler wash, pressure is blown down; the engine is killed, the fire removed and pressure blown down, and all water emptied out of the boiler through a cock in front, one of the blowout cocks. Some places they use a blow out system with hot water. Then all plugs are taken out, both around the fire-box and around the mud ring, located around the bottom of the mud ring, and up on top, over the top of the crown sheet, out over the top of the barrel of the boiler and also at the top of the boiler, and down at the bottom of the barrel through the under side. After the plugs are removed then we use water under a considerable hydraulic pressure, which ranges from 125 to 175 pounds at Holloway, to the square inch, and it is hot, really around about from 150 to 180 degrees. We use a reinforced washout hose to withstand the pressure, and certain special design nozzles for introducing it into these holes in the boiler. These nozzles are injected into the various hole openings of the boiler, which you obtain for the removal of these plugs, and we start at the top of the boiler washing down so as to remove all mud and sediment that might accumulate on the crown sheet and on the flues, work down through, and then we wash the barrel of the boiler on the under side, which brings everything finally to

the lowest point, which is around the mud ring. Then the hose is put in there and all accumulation of mud and sediment is washed [fol. 59] out; and also at this time we use what we call an arch tube cleaner, which we run through the arch tubes, sort of a turbine or a miller cutter, which you find in a machine shop. They just put that onto the tubes and remove all scale and sediment; also we use a pneumatic air hammer, a light air hammer and go over the entire crown sheet and side sheets, giving it a slight bumping, jarring motion, which jars all accumulation of scale free from the crown sheet; that, in turn, is all washed down, too, so that when the water wash is complete not only the mud but the accumulation of scale and any sediment that might have adhered tightly to the crown sheet is removed. Also the gauge cocks are removed at the boiler wash and any of them that are leaking in any way, they are ground in to provide a tight joint, and for the opening where the gauge cock screws into the outside wrapper sheet of the boiler in the back head, we have special tools like a big girder screw, about a quarter of an inch or five-sixteenths in diameter, which we run right through there to see that those tubes are all open through the opening into the boiler. The water glass which indicates the level, as well as the gauge cocks and connections there, are entirely cleaned by the use of running an instrument through them to see that all scale and sediment are removed and the water has a clear passage or clear circulation from the boiler through the water glass. Then after this is done the boiler is inspected by the boiler inspector, who usually uses either an electric light or a long piece of stiff wire with some asbestos soaked in oil, which they introduce in these various openings over the crown sheet of the boiler and examine it and see that all mud and sediment is removed, after which the inspector passes upon it to go ahead, and these plugs are put back and tightened. It is after this work is completed that the man signs for the boiler wash.

No cross examination.

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[fol. 60] T. E. PEAL, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is T. E. Peal. I live at New Martinsville, West Virginia. I am an engineer with the Baltimore & Ohio Railroad Company and was in September and August of 1920. I remember engine 2541, and remember of having had that engine on a trip in the latter part of August or first of September. I had it out of Holloway on the 31st of August, bound for Brooklyn Junction, which is about 69 miles. I was hauling a freight train.

When I had that train on the 31st of August the condition of her gauge cocks was good and her injectors were good. I did not have any trouble or notice any defect in the water glass. Her steaming qualities as far as being an efficient engine is concerned were good.

While I had it, to the best of my knowledge, I think there were some small leaks in the fire-box which were reported by me at the conclusion of my trip, on the 31st of August, 1920.

Cross-examination by Mr. Chapman:

On that run the sight glass indicated an even level in the glass feed. At no time on that run to my knowledge did the water in the sight glass feed fluctuate from the top of the glass down below the bottom and then back up again. I never saw it do that on an engine.

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HOWARD LISLE, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is Howard Lisle. At present, I live at Mason City, West Virginia.

In August and September of 1920 I was an engineer with the Baltimore & Ohio Railroad Company, running between Holloway and Brooklyn Junction and return. I was on freight runs.

In the course of my work in the latter part of August and first part of September I had occasion to drive engine 2541. I think I used it on the 29th, 30th or 31st of August. As to whether I [fol. 61] used the engine to take a freight train from Holloway to Brooklyn Junction and then used the same back, it depends on what engine was ready. We might be called for that engine and it might be some other engine is ready so that you wouldn't get that engine. While I was operating the engine on the 29th, 30th and 31st of August, I did not have a bit of trouble with the injectors. The gauge cocks were o.k., and the water glass. You can check the water glass against the gauge cocks and the gauge cocks against the water glass. They correctly showed the height of the water.

In my opinion as an engineer, when I had the engine she was in fair condition. I had some trouble with the air pump and that was reported on the work report.

Cross-examination by Mr. Chapman:

During my experience with that engine the water in the sight glass feed maintained a constant level and didn't fluctuate from the top to the bottom of that feed.

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W. S. BROOKOVER, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is W. S. Brookover. I live at Clarksburg, West Virginia.

I am an engineer with the Baltimore & Ohio Railroad Company and was such on the 3rd of September, 1920. On that day the number of my train was 100, and we were going from Clarksburg to Benwood, which would bring us past Foster Tower east bound.

As I passed I saw Groeger's engine at Foster. He was headed in the other direction, west, and was there when I arrived. His engine was at the penstock when I pulled in. As I was going and as he was going, my side of the cab was on the same as his, that is, our cabs were together; that was because he was on the siding. The penstock stood between the two engines. As I came into Foster I stopped my train about a car length of the water plug and the head brakeman cut the engine off so I could pull up and spot my engine at the water plug and take water and leave as soon as we got our orders and the other man got in the clear. I don't remember the head brakeman's name. I have heard my conductor say it was [fol. 62] Bursee, but I didn't ask him his name, as he was an extra and we have so many extra men and the brakeman's time is taken from the conductor's time slip, that is why I never ask the brakeman his name. He was on my engine and cut the engine off to get away. By cutting off the engine I mean he had charge of the coupling apparatus and the air hose. In cutting the train he would have to cut the air hose, cut the lever and signal me to go ahead. Before doing that he would have to dismount from the engine and go back to where the coupler was. After cutting our train it moved up to the water spout and I spotted my engine. At that time Groeger's engine was at the penstock, at about the time I got my engine stopped and tank spotted to take water. His fireman was done taking water and give the penstock a sling and my fireman took hold of it and put it in the tank and filled our tank.

I did not see Groegor at that time. Just about the time I seen the fireman was going to get the water started through the tank, that it was spotted about right, I looked ahead and Groegor came around the front of my engine underneath my cab, goes on beside me, and climbed up on his engine with his order in his right hand, nineteen order in the right hand, shoved the bar forward with the left hand and started his train, and pulled onto the siding. A thirty-one order is an order that the conductor signs and they are yellow, and the nineteens are green. If you see a green order in his hand you know it was a nineteen. He must of come out of the telegraph office. I didn't see him come out of the office, it is on the opposite side from me; just about the pilot would stop just a little by the door. It would be nearer for him to come around the front of the engine than the other way. He came from the direction of the office. When I pulled up he was not on his engine.

From the time we arrived there until we left I don't think it was over two minutes; I didn't just look, but I know it was a very short time. As I sat there in my cab I did not notice anybody in the cab, nobody but the fireman on the back of the tank taking water. I did not see our head brakeman on that cab at any time.

As the two engines stood there together and as Mr. Groeger started his train, I did not notice any escaping steam around the engine.

He didn't unhook his engine to take water; he didn't cut from his train. The train was attached to the engine as it stood there taking water.

[fol. 63] I learned afterward why he didn't cut off; he had a broken link hanger and couldn't reverse his train, so that he couldn't come up and back down. The link hanger is the reversing mechanism on the engine, and is located down around the wheels, between the drivers underneath the engine. It is a mechanism like the gear of an automobile; if that was out of order you couldn't go into reverse.

Cross-examination by Mr. Chapman:

Groeger's engine was taking water at the tower when we got there. I don't know whether the head brakeman was on top of the tank operating the penstock from the water plug or not, but his fireman was there. At this time, understand, I didn't know Marshall's name; I didn't know that fireman or I didn't know their head brakeman's name or I didn't know our head brakeman's name, because we got an extra man every day, and the brakeman's time, as I said, is taken from the conductor's time slip. That's why I didn't ask the extra man, the brakeman, his name, but if we have a regular man I always ask him his name. I waited until Groeger got away from the penstock and then our engine took water; that's why I waited.

J. W. BARKER, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is J. W. Barker. I live at New Martinsville, West Virginia. I was the fireman for Mr. Brookover on No. 100 the day we passed Groeger's engine at Forest Tower. Mr. Busey was head brakeman on our train.

When I got up to take water for our engine, up on the tank, I didn't notice anything more than the blower was working.

No cross examination.

[fol. 64] J. P. HILL, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is J. P. Hill. I live at Clarksburg, West Virginia. I am employed by the Baltimore & Ohio Railroad Company as a conductor and was in their employ as conductor of train 100 on the 3rd of September, 1920, bound from Clarksburg to Benwood. W. S. Brookover was our engineer.

I recall the train stopping at Foster that day. As we pulled into Foster and our train stopped, I got off the caboose and started to the

telegraph office at the head end of my train. As the train came to a stop I was riding on the caboose. I got off immediately. As near as I remember, we had about 52 cars in our train that day.

As I walked up towards the front end of our train along the track, the engine that Mr. Groeger was engineer of passed me when I got about 35 cars to the rear end, approximately 35 cars. A car is about forty feet long. I can walk from the rear end of a train of sixty cars to the head end in five minutes.

No cross examination.

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C. W. KIDNEY, a witness called by defendant, being first duly sworn, testified as follows:

Direct examination by Mr. Kinder:

My name is C. W. Kidney. I live at Bridgeport, Ohio.

I am employed by the Baltimore & Ohio and was in their employ prior to September, 1920 as fireman.

While working as fireman I had fired on an engine operated by J. C. Groeger and am acquainted with other firemen who had fired for Groeger. I was acquainted with railroad men that knew Groeger while he was running engines or in the service of the Baltimore & Ohio.

Q. Have you the means of knowing what the reputation of Mr. Groeger was with regard to the manner in which he operated his engines so far as water conditions are concerned?

A. Yes, sir.

[fol. 65] Mr. Chapman: I object.

The Court: Objection sustained.

Mr. Kinder: Exception. Defendant offers to prove by the witness, if permitted to answer, that the answer would be yes.

Q. What was that reputation?

Mr. Chapman: Object.

The Court: Sustained.

Mr. Kinder: Exception. Defendant offers to prove by the witness, if permitted to answer, that the witness would testify that Groeger had the reputation of being a "low water man." In other words, that he held the reputation of operating engines with water lower than safety required.

(Noon recess.)

C. E. McGANN, a witness recalled by defendant, having been previously sworn, further testified as follows:

Direct examination by Mr. Woods:

I have testified I was master mechanic of the B. & O. Railroad.

The accident occurred at 11:55 a. m. and I arrived at the scene along about 2:40 p. m. I immediately went to the boiler and made observations and inspections, and also looked over the machinery part which was standing on the tracks, and sent a report to the superintendent of the Wheeling Division of what I found.

(Witness handed Defendant's Exhibit 1 for reference.)

The crown sheet was overheated in an area of forty-six or forty-eight by thirty-four inches in diameter, covering the highest part of the crown sheet which was discolored, and showed a very peacock blue coloring, indicating that the crown sheet had been overheated. The crown sheet had pulled down and tore loose from the bolts, and tore at the rear sheet down to about the eleventh row from the center, extending down to the door collar, around on to the opposite side, tearing down on the left side sheet diagonally to the mud ring; from the flue sheet it tore diagonally down the front portion to the mud ring, [fol. 66] on the front and back at the left side. On the right side it tore near the flue sheet, extending down diagonally to within four rows of the mud ring, extending back diagonally to the tear in the rear sheet. The bolts which we found had been broken were not near the sheet that had tore either on the right or left side, nor near the crown sheet. The location of the bolts where the crown sheet had pulled loose from were in the highest part of the crown sheet near and to the flue sheet, the longest elongation of the holes showing in the fourth row from the flue sheet; all bolts that had been pulled through the crown sheet were all good sound bolts.

There were seven broken bolts in the entire boiler; three bolts on the right side, nine rows from the center, one bolt the third row from the door sheet, the second bolt the fifth row, the third bolt the seventh row. The crown bolt was four rows from the rear flue sheet located on the right side. The bolts on the left side was the fifth row from the rear sheet, one in the sixth and one in the eighth row, two being adjacent, and fourteen rows up from the mud ring.

In my opinion those broken bolts contributed none whatever to the tear of the crown sheet and the consequent explosion of this boiler.

I examiner the bolts in the boiler after the accident. Defendant's Exhibits 10 and 11 are the crown bolts received from the crown sheet of 2541 after the explosion. These were the bolts that were damaged due to the sheet being overheated and pulling the bolt heads off. Neither of these are the broken bolts I referred to. These bolts are hammer-driven radials through the crown sheet. When the sheet became heated to a cherry red, with the pressure of the steam forcing down on this sheet, it pulled the heads off of those bolts and backed the sheet down, which allowed the pressure of steam and water to force against these holes, which pulled the sheet, made the hole ob-

long; in other words, known as elongation. The force and pressure of that water and steam on that sheet pulled it down off all the good bolts, and none of the bolts which were shown as broken were near the parts of the sheet that pulled away. These heads of these bolts are blue, which is an indication of the water being off the bolts. The threads were in good condition, apparently, prior to the time of the explosion.

Water from a crown sheet, in order for a sheet to fail, will have to [fol. 67] be heated to sixteen hundred degrees Fahrenheit. The amount of pressure depends, and the greater the pressure the less the Fahrenheit. This engine, carrying approximately 160 pounds of steam, that sheet would have to be around 1,600 degrees Fahrenheit, and it would take from the time the water left the sheet until the sheet heated to that degree, approximately fifteen minutes, before the explosion occurs.

I went into the fire-box. The entire circumference of the boiler and the fire-box underneath were clean. There was some little small sediment that clung to some of the bolts, but the circumference of the boiler and the fire-box and mud ring were clean.

A blower on a locomotive is to give draft to the fire when blowing up the fire or when drifting downhill; when the throttle is closed on a locomotive the blower is used to take gas and fumes from the fire-box out through the flues into the smoke box and out into the atmosphere. It creates a very strong draft.

Assuming steam was escaping into the fire-box and the blowers were put into operation, it would draw the steam or whatever vapor was escaping out through the flues into the atmosphere. It would not be possible to have escaping steam through the fire-box doors if the blowers were in operation.

The capacity of a boiler of the 2541 type is 2448 gallons of water, as near as I can remember. The capacity of the tank where the water is carried is 10,000 gallons. The capacity for each injector when they are open to their capacity is 4,500 gallons per hour, 9,000 gallons when both injectors are open. The purpose of the injectors is to take the water from the storage tank and tender into the boiler. The engineer controls these injectors and lets what volume of water in there he wants to by the water regulating valves. If both injectors were permitted to remain open for five minutes, it would knock the steam pressure of the locomotive down, say, 160 pounds, to about 120 pounds within five minutes, were both injectors working full. An engine would not be able to go on with that steam pressure with a train. You would be able to handle the engine light but you would not be able to handle a train.

Defendant's Exhibit 12, known as Form 1407-C revised, is the annual locomotive inspection and repair report in accordance with the Interstate Commerce Commission for the bureau of Locomotive Inspection. When an engine receives the hydrostatic test in any of our shops this is made out by a qualified inspector and the report [fol. 68] is transmitted to the Interstate Commerce Commission. The date of that report is June 3rd, 1920, covering locomotive 2541, Baltimore & Ohio. The contents of this report were that the engine

received a hydrostatic test, that is, that pressure is applied to the boiler twenty-five per cent greater than working pressure in order to determine the strength of the sheets and the braces on the interior of the boiler; and sworn to by a qualified inspector under oath. This report also carries, "All the flues removed and new flues applied." That test was made June 3rd, 1920. The law also requires that when all flues are removed the entire circumference of the boiler shall be cleaned from all sediment and scale. This is also passed by a qualified inspector before the report is completed. Also all flexible stay bolts were hammer tested, all the caps were removed from flexible stay bolts; the hydrostatic pressure of 257 pounds was applied to this locomotive; the condition of the crown stays and stay bolts were good; the condition of the firebox sheets and flues were good; the condition of the arch tubes were good; the throat braces were good; the back head braces were good; and the condition of the front flue sheet braces were good.

I am acquainted in a general way with the use of fusible plugs on locomotives. The Southern Railroad, during my time on that road, used fusible plugs. There was quite a number of railroads that did not use them at all. I have inquired lately as to the Pennsylvania System and I understand that they do not use them.

**Cross-examination by Mr. Chapman:**

I have made no personal inspection of any of the Pennsylvania Company's boilers with reference to fusible plugs. The statements I have made is something that has been told me.

**Mr. Chapman:** Then I ask that that be stricken from the record.

**The Court:** If he has no personal knowledge on the subject it may be disregarded.

I am familiar with the track prior to that point where this explosion occurred, on the way from Moundsville to Brooklyn Junction. It is level at the point of the accident, and straight; it might be a little curvature there but very small, if there is any.

[fol. 69] **Mr. Kinder:** That's all. With the offering of the various exhibits and this model and these bolts, we rest.

**The Court:** The exhibits which have been identified and introduced will be admitted. I do not understand that there is any objection.

Thereupon the plaintiff rested.

Thereupon the defendant rested.

Thereupon defendant renewed its motion made at the close of the plaintiff's case, to arrest the testimony from the further consideration of the jury and to direct the jury to return a verdict for the defendant; which motion was overruled by the court; to which ruling of the court defendant then and there duly excepted.

The above and foregoing, together with the exhibits attached hereto and made part hereof, was all the evidence offered and received on the trial of the above entitled cause.

Thereupon, after arguments to the jury by counsel for the respective parties, the Court charged the jury as follows:

#### COURT'S INSTRUCTIONS TO JURY

This action is brought by the administratrix of John C. Groeger, deceased, against The Baltimore & Ohio Railroad Company. Plaintiff seeks to recover such damages as have been sustained by the widow and children of the decedent as a result of his alleged wrongful death. It is alleged that this wrongful death is due to the failure of the defendant to comply with certain provisions of the Federal Employers Liability Act, of April 22nd, 1908, and its amendments, and particularly the Federal Boiler Inspection Act, and its amendment of 1915. These acts were made for the protection of the life and limb of employees of interstate railroad carriers while the employees of these carriers are engaged in interstate commerce. It is admitted here in this case that the decedent and the defendant company were, at the time the decedent met his death, engaged in interstate commerce, and the rights of the parties are therefore governed and controlled by the provisions of those several acts so far as they are applicable to the facts of this case.

The Plaintiff is entitled to recover only in the event the decedent met his death due to the negligent or wrongful conduct of the defendant. That is a question of fact and a question of law. It is [fol. 70] for you, under the law as I shall state it to you, to determine what the facts are, particularly the issues of fact as I shall state them to you and submit them to you for your decision. In the determination of those issues there is no place for any feeling of sympathy or prejudice. It is essential that you shall weigh and determine those issues of fact, and that you shall perform your duty here in an impartial and impersonal manner, regardless of who the parties to this action may be and regardless of the consequences of your verdict upon those parties.

The plaintiff is not entitled to recover simply because of the fact that there was a boiler explosion and John C. Groeger met his death. The defendant's conduct is not presumed to have been negligent or wrongful because of the fact that there was this boiler explosion. That explosion may have been due to causes for which the defendant was not to blame, either under the law of negligence or under the Boiler Inspection Act, and therefore the burden is cast upon the plaintiff to satisfy you by a preponderance of the evidence that this boiler explosion which caused the decedent's death was due to the negligent or wrongful conduct of the defendant; and that burden must be sustained by what we call a preponderance of the evidence.

On the other hand, there is no presumption that the decedent was himself negligent in the operation of a locomotive engine which caused the explosion. He will be presumed to have been exercising ordinary care for his own safety. But, as I say, inasmuch as the

plaintiff is here seeking a recovery based upon the negligent or wrongful conduct of the defendant, and in as much as there is no inference of negligence or wrongful conduct to be drawn from the fact that there was an explosion and the resulting death, the plaintiff must sustain that burden by the evidence here produced by a fair preponderance, and must prove that the defendant's conduct was wrongful or negligent in some one or more of the respects charged in the plaintiff's petition.

Many of the facts are not in dispute. It is admitted, as I have said, that the decedent was employed by the defendant and was in the performance of his duty as such an employe at the time he met his death. It is also conceded and admitted that the plaintiff's decedent and the defendant were engaged in interstate commerce at the time of this boiler explosion, and because therof the rights of the parties are controlled by these Federal Statutes to which I have [fol. 71] made reference. It is also admitted that the decedent met his death as a result of the explosion of the locomotive boiler on engine 2541 of the defendant, on the 3rd day of September, 1920. There is no dispute that the decedent as locomotive engineer took charge of this locomotive engine at Holloway, Ohio, on the morning of the 3rd of September, and operated it throughout the forenoon of that day, and that the explosion took place along or about 11:55 A. M. of that day.

The controversy between the parties is as to the cause of the explosion. The plaintiff here asserts that this explosion was due to a failure of the defendant to comply with some of the provisions of the Boiler Inspection Act requiring certain things, which I shall presently state to you, and that its failure so to do was the direct and proximate cause of the explosion and of the resulting death of the plaintiff decedent. The defendant denies this. It is around that question of asserted liability and wrongful conduct made by the plaintiff, and the denial thereof made by the defendant, that the controversy upon the facts arises.

Now, in what respect does the plaintiff charge and claim that the defendant was negligent or did not comply with the Boiler Inspection Act? Plaintiff makes various claims upon that subject, some of which I am withdrawing from your consideration because, in my view, there is no substantial evidence tending to support the plaintiff's assertions or charges of negligence, and unless there is some substantial evidence so supporting them, it becomes a question of law which it is my duty to determine. It is only when there is a conflict in the evidence that there becomes a question of fact to be tried by you.

Plaintiff claims that the defendant was guilty of negligence and carelessness in causing, permitting and allowing a dangerous, unsafe and insufficient condition to be and remain in and about the crown sheet of said boiler, whereby it was weakened, defective, unsafe and leaky, and that this was due to having previously been overheated and to the breaking of certain stay and crown bolts therein. I am submitting it to you in my own words, as I understand the plaintiff's

contention, and not in the language of the claims made in the plaintiff's petition.

Plaintiff further charges that the defendant was negligent and careless in causing and permitting said boiler and appurtenances [fol. 72] thereto to be used in interstate commerce when the same were not in proper and safe condition for operation in the service to which they were put, without unnecessary peril to life and limb, because the defendant had failed and neglected to equip said boiler with a fusible plug to prevent the explosion of said boiler. Certain other charges are made by the plaintiff, namely, that unfit and improper water was furnished to be used by said engine, and that this water contained foreign matter which caused it to foam. I am withdrawing that averment of negligence of wrongful conduct from your consideration because, in my judgment, there is no substantial evidence here tending to show that unfit and improper water containing any foreign substance which would cause it to foam was, in fact, furnished or used.

Plaintiff also charges that defendant allowed to be placed on said engine a water glass indicator which indicated that the boiler had water in it at the time it did not have — in it, and am withdrawing that averment of negligence from your consideration, because there is no evidence tending to support that any such water gauge was so furnished and used. The other averments of negligence, namely, that the defendant failed to furnish the decedent with a reasonably safe place to work, and that it was negligent and careless in failing and neglecting to make adequate and sufficient inspection of said engine and its equipment, are related to the two averments of negligence which I am submitting to you for consideration. If the defendant failed, as charged, in either one or the other of those allegations of negligence that I am submitting to you, then it would have failed to have provided a reasonably safe place for the plaintiff to perform his labor; but if it did not so fail, then there is nothing in the averment that the defendant failed to furnish a reasonably safe place to work. And likewise as to the failure to make adequate inspection. If the plaintiff failed in one or the other or both of the respects as charged and as I am submitting, if you find whether or not it did from the evidence, then the fact that it may have inspected it, and no matter how careful that inspection might have been, it would, nevertheless, be liable because of its failure to discover these defects, or, if it discovered them, of its failure to correct them.

In brief, gentlemen, the issues of fact here come down concretely to these two propositions, the two issues asserted by the plaintiff and denied by the defendant:

[fol. 73] (1) Did the defendant permit or allow a dangerous, unsafe and insufficient condition to be and arise in and about the crown sheet of said boiler whereby it was weakened and became defective, unsafe and leaky, whether that was due to any or whatever cause, broken crown or stay-bolts or other causes, and if so, was the boiler explosion thereby caused in whole or in part? Plaintiff asserts that, and the defendant denies it. It will be for you to say under the

evidence here, gentlemen, and the law as I state it to you, what the fact is in this respect.

(2) It being conceded that the defendant had failed to install and equip this locomotive engine with a fusible safety plug, it will be for you to say whether or not the standard of duty imposed by law upon the defendant, to see that any locomotive engine propelled by steam in use on its road in interstate commerce was in a proper condition and safe to operate in the service to which it was put, that the same might be employed in the active service in moving traffic without unnecessary peril to life or limb, was violated by the failure to equip this engine with a fusible safety plug. Plaintiff asserts that it was a violation of the duty imposed by law upon the defendant not so to equip its engine; the defendant asserts the contrary, and that will be the issue to determine under the evidence as I shall state it to you, and if so, whether that was the proximate cause or one of the proximate causes of this injury. The defendant denies these charges of negligence; that places the burden of proof upon the plaintiff, and the plaintiff must sustain that burden by a preponderance of the evidence.

Now, what is the law? As I have stated, these issues are controlled by provisions of the Boiler Inspection Act and by certain provisions of the Federal Employers Liability Act. The Boiler Inspection Act, among other things, provides that it shall be unlawful for any common carrier to use any locomotive engine propelled by steam power, moving in interstate or foreign traffic, unless the boiler of said locomotive engine and appurtenances thereof are in a proper condition and safe to operate in the service to which the same is put, that the same may be employed in the active service of such carrier in moving traffic without unnecessary peril to life or limb.

Such was the duty of the defendant here, and it owed that duty to John Groeger, the deceased engineer, in the equipment of and [fol. 74] putting and keeping this engine in condition. The question, then, will be whether or not the defendant used this locomotive engine when it was not in proper condition and safe to operate in the service to which it was put so that the same might be employed in the active service of such carrier without unnecessary peril to life or limb. The standard of duty is that they shall put it in proper condition and keep it in proper condition and safe to operate; it is required that it should be put in a condition and kept in a condition so that it might be employed in the service without unnecessary peril to life or limb. This is an absolute duty. If the engine, as to the crown sheet was, in fact, permitted to be or to become in a defective, dangerous or unsafe condition, in such a condition that it was not safe to operate in service, or in such a condition that it could not be employed in the active service of the carrier in moving traffic without unnecessary peril to life or limb, that would be a violation of its duties; and if, as a result of such violation of its duties, the explosion occurred, or such failure was a contributing cause, or a direct and proximate cause, along with others, to the explosion and the resultant injury, the defendant would be liable. And that

is true, notwithstanding the defendant may have made or caused to be made inspections from time to time as required by the regulations of the Interstate Commerce Commission, or by skilled and competent employees who may have made repairs in accordance with the reports of such inspections. I say, if it, in fact, permitted that condition to come about, and as a result of that condition, in whole or in part, the explosion resulted, then the defendant would be liable.

Now, as to the failure to install a fusible plug, that depends upon different considerations. In other words, whether the standard of safety which is prescribed by that act requires a fusible plug depends upon somewhat different considerations, as to which it is my duty to charge you. If you shall say and find that the standard of duty imposed by the law required a fusible safety plug to be installed, then the absence of the fusible safety plug would impose upon the defendant here an absolute liability, and the plaintiff would be entitled to recover if the absence of it contributed in whole or in part to cause the explosion and the resulting death. The law does not say that locomotive engines thus used shall have fusible plugs in them. The Interstate Commerce Commission has authority to prescribe regulations for inspections and for equipment under the Boiler [fol. 75] Inspection Act, and the Interstate Commerce Commission has not prescribed as a requirement that fusible safety plugs shall be installed on locomotive engines. It becomes, then, a question to be determined by you under the facts and circumstances of this case whether or not the duty to put locomotive boilers in proper condition so as to make them safe requires the installation of a fusible safety plug. Obviously, new appliances and new inventions may be developed from year to year and from time to time for the safe operation of machinery and of locomotive engines and boilers; whether or not they are feasible, and if feasible, whether or not it is practicable to install them are open questions. That question is not to be determined by looking backwards after an accident, but by looking forward.

An interstate carrier, as well as any railroad carrier, owes the duty, of course, of availing itself of the best mechanical contrivances and inventions in known practical use which are or would be effective in making safe a locomotive boiler as against explosions. It is not bound to introduce a new appliance the moment somebody suggests it or discovers it, but is entitled to a reasonable time and opportunity to test it out and make any changes.

Such I conceive to be the rules under which you are here to determine whether or not the standard of duty in making this engine safe did or did not require installation of a fusible safety plug. I say to you it is and was the duty of the defendant to avail itself of the best mechanical contrivances and inventions in known practical use which were or are effective in making the boilers safe as against explosions. Now, the question will be whether or not the fusible plug, the existence of which has been known for many years, is in practical use and is reasonably effective for the purpose for which it is intended. Are the limitations upon its use,

namely, the claimed tendency to encourage negligence by the engineer in the operation and conduct of a locomotive, the risks and hazards incident thereto towards the fireman and other employees, the inconveniences, burdens and perhaps dangers from having engines and trains go dead upon a highway of commerce being used at the same time by other engines and trains,—I say, are these considerations offset against the other considerations which are claimed on behalf of the plaintiff? Are they of such a nature as takes the fusible plug as a means of safety upon an engine out of [fol. 76] the category of the best mechanical contrivances and inventions known and in practical use and effective as a means of safety in preventing boiler explosions?

In determining that you will take into consideration all the facts and circumstances of the case, and the practice so far as it has been proven to you among railroad men, reasonably prudent and careful railroad operators, what they have done and what their judgment is in regard to the matter, and determine whether or not the fusible safety plug under the law as I have stated it to you was proper and necessary to put this engine in proper and safe condition to operate, and if the operation of it without such fusible safety plug created an unnecessary peril to the life and limb of the employees. If you shall find, under the charge that I have given you, that a fusible safety plug was required by that standard, and that it was a mechanical means and contrivance in known practical use and effective more than was any other that had been installed by the defendant on this engine, then its absence would be a violation of the Boiler Inspection Act, and if the explosion resulted in whole or in part because of the absence of the fusible plug, and the decedent thereby met his death, plaintiff would be entitled to recover.

If John Groegor met his death as a result of the failure of the defendant in either one or both of the respects which I am submitting to you as issues of fact to be determined under the evidence, then he will not be held to have assumed the risk of injury from either or both of those causes, nor will any negligence on his part which may have contributed to cause these injuries or his death bar the plaintiff here from recovery, nor be taken into account by you in reducing or diminishing her damages.

If, however, gentlemen of the jury, you do not find that the defendant was negligent in one or the other of these respects, that is, not guilty of the wrongful conduct and violation of the law as I have stated the law to you, your verdict should be for the defendant. The defendant contends that it furnished the plaintiff's decedent an engine in proper condition and safe in all respects, that there was nothing about it which in its operation imposed an unnecessary peril to the life or limb of the plaintiff's decedent. Unless the evidence by a fair preponderance supports plaintiff's contentions as against these contentions of the defendant, your verdict should be for the defendant. The defendant contends that this [fol. 77] engine having thus been furnished in a proper and safe condition, that the handling of that engine thereafter by the dece-

dent was the sole and proximate cause of the death of the decedent, and unless the evidence overcomes that contention of the defendant by a preponderance, it will be your duty to return a verdict for the defendant.

I have said to you, and I repeat, that the negligent or wrongful conduct of the defendant must be either the sole or proximate cause of the decedent's death, otherwise the plaintiff will not be entitled to recover. And by a proximate cause in that connection is meant a cause except for the existence of which the explosion would not have occurred. To be more specific, and as applied to one aspect of the case, complaint is made that in the crown sheet of this boiler there were six broken stay-bolts and one crown bolt, and that two of these broken stay-bolts were adjacent to each other, whereas the inspection requirements of the Interstate Commerce Commission regulations forbid the use of an engine under the Boiler Inspection Act when there are five or more broken bolts, or where there are two broken bolts contiguous to each other. Even if it should be proved that that requirement of the law was violated, the plaintiff would not be entitled to recover by reason of such violation unless you should further find from a preponderance of the evidence that this specific violation, these specific defects, was either the sole or one of the causes but for the existence of which the explosion would not have taken place. If the existence of these broken stay-bolts had nothing to do with causing the explosion, then you should disregard their existence because, as I say to you, the negligent or wrongful conduct which you may find by a preponderance of the evidence the defendant is guilty of, must have been either the sole or one of the proximate causes of the explosion and of the resultant death of plaintiff's decedent.

The burden of proof, as I have said to you, is upon the plaintiff, and that burden must be sustained by a preponderance of the evidence, and by a preponderance of the evidence is meant merely the greater weight of the evidence. It is its convincing force and effect which we have in mind when we speak of the preponderance of the evidence, and not the volume of the testimony or the number of witnesses. The evidence will be said to preponderate in favor of one side of the contentions as against the other whenever, upon the weighing and consideration of the evidence, the greater probability of truth appears to be in favor of one side of the contentions as against the other. The weight of the testimony and the credibility of the witnessess is a matter peculiarly within your province, and presents in this case no particular difficulties which require comment from me.

If upon the consideration of this case you find that the plaintiff is not entitled to recover, in other words, if you find these issues in favor of the defendant, that will end your labors. Your verdict would be a simple finding in favor of the defendant. If, on the other hand, you find these issues as to the liability in favor of the plaintiff, then you have a further duty to perform. It will be your duty in that event to assess the plaintiff's damages. The plaintiff

here is the administratrix of John C. Groeger, deceased, and is entitled to recover such damages as result in a pecuniary way to the widow and children of the decedent. You will understand it is that which the widow and children have lost in money, in dollars and cents, as a result of his death, which you are to take into account and to assess and find the fair equivalent in money. Nothing is to be imposed by way of punishment on the defendant for any wrongful conduct or alleged violation of law upon its part. Nothing is to be included in your verdict by way of consolation or solace as to the feelings of the living for the dead; but your duty is to be performed and the pecuniary loss is to be assessed by you upon the basis of dollars and cents, uninfluenced by any feeling of sympathy or prejudice. Obviously, the elements are somewhat intangible. Had the decedent lived his widow would have participated to a greater or less extent in the earnings which he made or might have made from time to time. It is fair to assume that if he had lived his minor children would have participated in and benefited by his earnings and by his services to them and to their mother. These elements are so far intangible that damages or compensation in a case of this character is a matter peculiarly within the sound judgment and discretion of the jury, controlled, of course, by the special facts and circumstances of the case.

In this case the decedent, it appears, was thirty-five years of age at the time of his death; he had a normal expectancy of thirty-one plus years of life; he was earning, I believe, during the year preceding his death, at the rate of one hundred and eighty dollars a month, and in the last month before his death he had earned as high as three hundred dollars. His employment as that of a loco-[fol. 79] motive engineer. Now, you will take these facts and circumstances into account and you will, by applying thereto and to all the facts and circumstances in the case, your sound judgment, fix and assess a lump sum of money payable now, at this time, which represents your best judgment of the money equivalent of the pecuniary benefits which the widow and children have been deprived of as a result of the decedents death. And it is well to remind you, in so far as you may look into the future and take into account the pecuniary benefits which the widow and children will have derived in the future; that your verdict is payable at this time, and the present worth of the sum of money payable in the future is the fair equivalent, in law, of that future payment. Beyond this, gentlemen, in the event your finding shall be in favor of the plaintiff, I can give you no assistance in assessing the damages.

Gentlemen, this is all I had intended to give the jury in charge. Does the plaintiff desire any additional charge?

Mr. Chapman: No, your Honor.

The Court: Does the defendant desire any additional charge?

Mr. Kinder: No, your Honor.

The Court: You have not handed me up any special requests, but I suppose that you each wish to take some exceptions, and if so, you are required, under the law to take them now unless both

parties consent that they may be taken, after the jury retires, as if they were taken in the presence of the jury. What do you say about that?

Mr. Chapman: Plaintiff has no objection.

The Court: Gentlemen of the jury, you may go to your rooms. You will be furnished with the pleadings and with the exhibits. It is not necessary that you should remain in session any prolonged period. If, after selecting a foreman and canvassing the situation, you desire to adjourn until tomorrow morning for more mature and deliberate consideration of the case, you may do so.

Mr. Kinder: Defendant excepts to the charge of the Court in leaving to the jury the assignment of negligence that the boiler was weak, defective, unsafe and leaky.

2. Defendant excepts to the action of the Court in leaving to the jury all claim of negligence that there was not adequate and sufficient inspection of the engine.

[fol. 80] 3. Defendant excepts to the action of the Court in leaving all questions of negligence based upon the fact that the defendant's engine was not equipped with a fusible plug.

4. Defendant excepts to the charge of the Court in leaving to the jury to determine, (a) the standard of duty imposed by the Boiler Inspection Act, and (b) in leaving to the jury the question of whether the failure of the defendant to install a fusible plug was negligence under the standard which the jury were thus directed to determine.

5. The defendant excepts to that portion of the Court's charge defining the duty of the defendant to the effect that it was required under the Boiler Inspection Act to avail itself of the latest and most approved appliances in use on locomotive engines.

6. Defendant excepts to that portion of the charge of the Court defining or attempting to define the duty of the defendant in regard to the application or non-application of a fusible plug.

7. Defendant excepts to the charge of the Court in leaving to the jury the question of whether or not the seven broken stay-bolts were the proximate or a contributing proximate cause of this explosion, on the ground that there was no evidence in the record offered at the trial tending to prove that such stay-bolts proximately contributed to the explosion.

8. Defendant excepts to that portion of the Court's charge defining defendant's duty under the Boiler Inspection Act in regard to the use or non-use of a fusible plug.

9. The defendant excepts to that portion of the Court's charge defining under the Federal Employers' Liability Act the compensation to which the plaintiff would be entitled in the event of a finding in her favor.

10. Defendant excepts to that portion of the Court's charge leaving to the jury to determine from the practice of other railroads

the question of whether or not the use or non-use of a fusible plug was or was not negligence.

11. Defendant excepts to that portion of the Court's charge to [fols. 81 & 82] the effect that if the plaintiff's decedent was guilty of contributory negligence, the defendant, if found guilty of negligence, would not be entitled to reduction in the amount of damages based on the contributory negligence of the plaintiff's decedent.

12. Defendant excepts to the charge of the Court generally.

Thereupon the jury retired and thereafter returned into court with its verdict, which said verdict was in favor of the plaintiff and against the said defendant as appears of record herein.

Thereupon the court entered judgment upon said verdict, as appears of record herein, to which ruling of the court defendant duly excepted.

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MOTION TO SET ASIDE JUDGMENT AND FOR NEW TRIAL AND ORDER  
OVERRULING SAME

Thereafter, and within three days after the rendition of said verdict and the entry of said judgment, the defendant filed its written motion herein to set aside said judgment and for a new trial, for the reason and upon the grounds therein set forth, as appears of record herein.

Said motion coming on to be heard was argued by counsel and submitted to the court, and the court, on consideration thereof, overruled the same, to which ruling of the court the defendant duly excepted.

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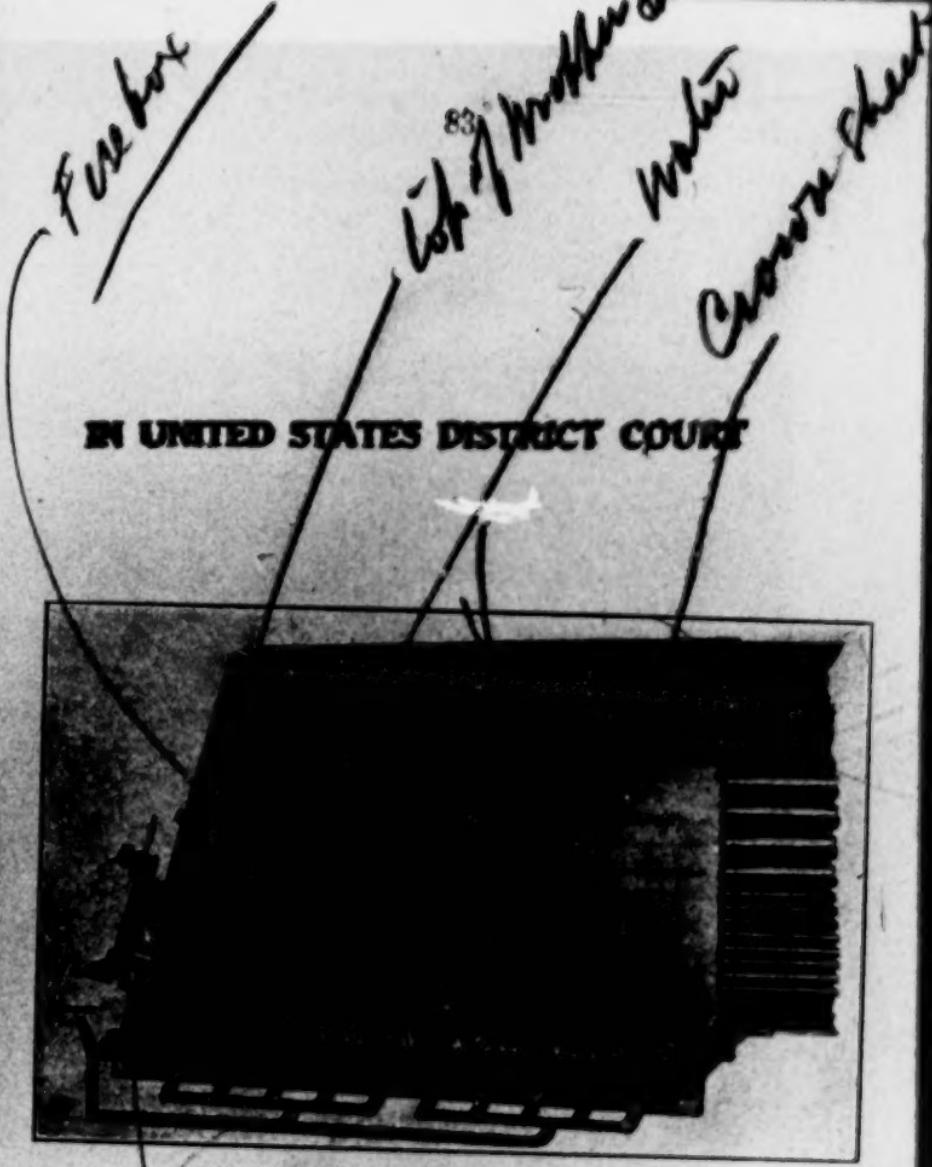
ORDER SETTLING BILL OF EXCEPTIONS—Filed July 22, 1924

And now comes the defendant and presents to the court this its bill of exceptions in narrative form, taken on the trial of the said case, which it prays the court may be allowed, signed and sealed, and filed in the case.

Upon examination of the foregoing bill of exceptions in narrative form the court finds the same contains all the evidence offered and received on the trial of the above entitled cause, and is correct in all respects, and it is hereby approved and allowed and ordered to be filed by the clerk of this Court.

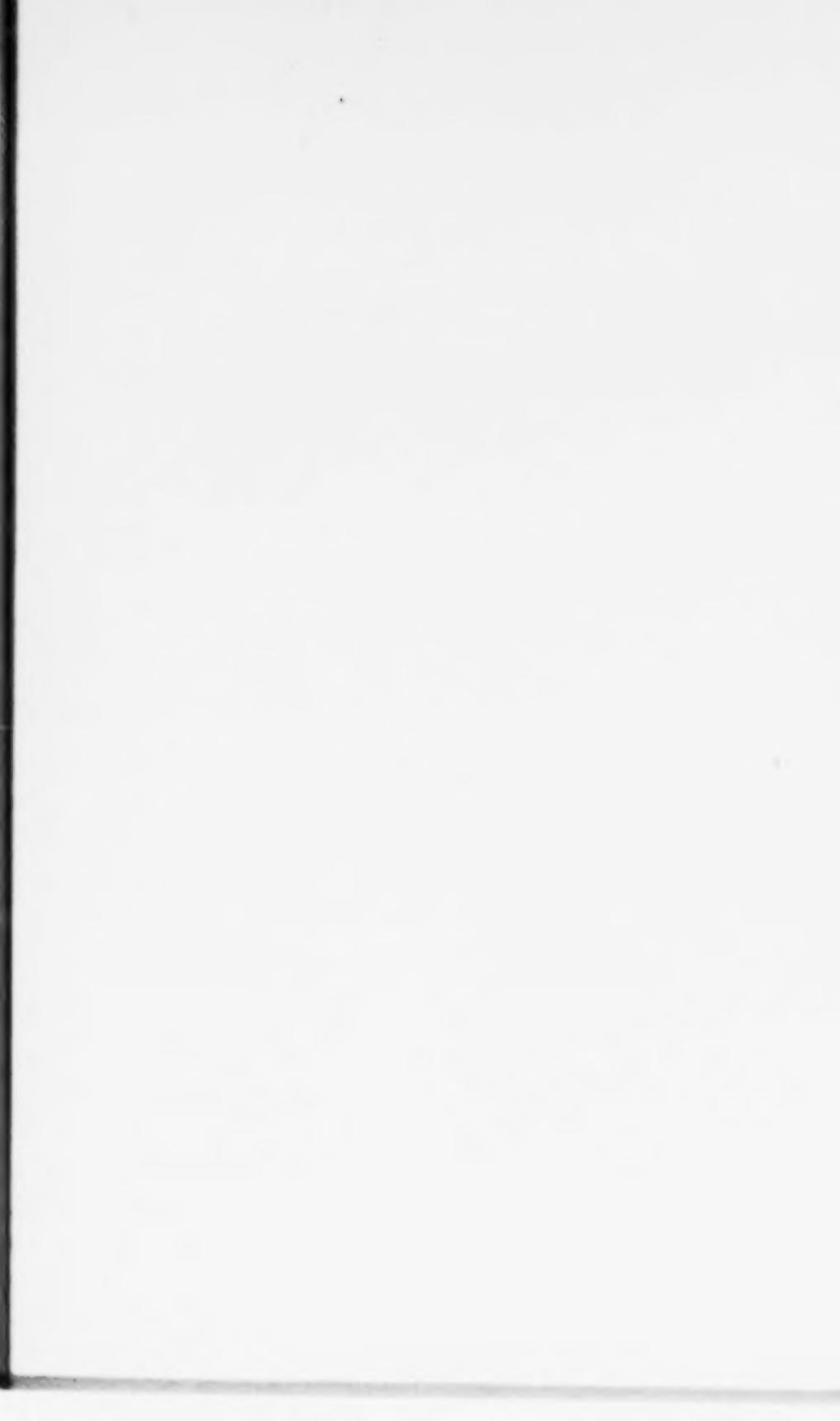
D. C. Westenhaver, Judge.

(Here follows Defendant's Exhibits Nos. 2, 3, and 4, marked side folio pages 83-88, inc.)



DEFENDANT'S EXHIBIT NO. 2.  
Cut of Locomotive Firebox.  
(Filed April 26, 1922.)

④ ⑤  
③ ②  
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[fol. 89]

## IN UNITED STATES DISTRICT COURT

DEFENDANT'S EXHIBIT No. 6—Filed April 26, 1922

## Monthly Locomotive Inspection and Repair Report

## State Card Filed

Month of August, 1920.

Locomotive Number 2541; Initial, B. &amp; O.

For Identification: A.

United States Railroad Administration

Baltimore and Ohio Railroad

In accordance with the act of Congress approved February 17, 1911, as amended March 4, 1915, and the rules and instructions issued in pursuance thereof and approved by the Interstate Commerce Commission, all parts of locomotive No. 2541, including the boiler and appurtenances, were inspected on August 7, 1920, at Holloway, Ohio and all defects disclosed by said inspection have been repaired, except as noted on the back of this report.

1. Steam gauges tested and left in good condition on June 3, 1920.
2. Safety valves set to pop at 205 pounds, 208 pounds, None pounds on June 3, 1920.
3. Were both injectors tested and left in good condition? Yes.
4. Were steam leaks repaired? Yes.
5. Condition of brake and signal equipment, Good—Not used.
6. Condition of draft gear and draw gear, Good, Good.
7. Condition of driving gear, Good.
8. Condition of running gear, Good.
9. Condition of tender, Good.

I certify that the above report is correct.

R. Cecil, Inspector.

10. Was boiler washed and gauge cocks and water glass cock spindles removed and cocks cleaned? Yes, Yes.
11. Were steam leaks repaired? Yes.
12. Condition of stay bolts and crown stays, 3 broken—Good.
13. Number of staybolts and crown stays renewed, 3 renewed—None.

- [fol. 90] 14. Condition of flues and firebox sheets, Good, Good.  
 15. Condition of arch and water bar tubes, if used, Good—Not used.  
 16. Were fusible plugs removed and cleaned? Not used.  
 17. Date of previous hydrostatic test, June 3, 1920.  
 18. Date of removal of caps from flexible staybolts, June 3, 1920.
- I certify that the above report is correct.

J. W. Brewer, Inspector.

STATE OF OHIO,

County of Belmont, ss:

Subscribed and sworn to before me this 11th day of August, 1920, by R. Cecil, J. W. Brewer, inspectors of the Baltimore & Ohio Railroad Company.

S. J. Bell, Notary Public.

My commission expires Sept. 11, 1922.

The above work has been performed and the report is approved.

E. W. Cropp, Officer in Charge.

IN UNITED STATES DISTRICT COURT

DEFENDANT'S EXHIBIT No.7—Filed April 26, 1922

The Baltimore and Ohio System

Locomotive Inspection Report

Locomotive, Number 2541; Initial, B. & O.

Instructions.—Each locomotive and tender must be inspected after each trip or day's work, and report made on this form, whether needing repairs or not. Proper explanation must be made hereon [fol. 91] for failure to repair any defects reported, and the form approved by foreman, before the locomotive is returned to service.

Engineers must carefully inspect their locomotive and tender, and report work needed.

No attention will be given verbal reports or reports not signed by engineman.

Train No. —. Inspected at H. Time, — m. Date, 9, 2, 191—.

Line, —.

No. —.

### Repairs Needed.

1. L. front Truck wheel shaft flange (A) Ferrell.
2. L. piston gland leaks (B) Guthrie.
3. Key up L. bent end M. Rod (C) Nichols.
4. Tighten R. tumbling shaft cushion to frame (D) Nichols.
5. Tighten L. front Cylinder Cock (E) Nichols.
6. Tighten bottom Rocker arm fuse (F) Nichols.
7. Stop leak L. feed pipe (G) Greenwalt.

Condition of Bell Ringer, good.

Condition of Air Compressor, good.

Main Reservoir Pressure 90 Pounds, as found.

Brake Pipe Pressure 70 Pounds, as found.

R. Cecil, Inspector.

Condition of Brakes, Driver, good.

Condition of Brakes, Tender, good.

Condition of Safety Appliances, good.

Main Reservoir Pressure 94 Pounds, as corrected.

Brake Pipe Pressure, 70 Pounds, as corrected.

R. Cecil, Inspector.

The above work has been performed, except as noted, and the report is approved.

W. O. Kennedy, Foreman.

NOTE.—Proper explanation should be made on the back of this form for failure to repair any defects reported.

Side Bearing Clearance.—Right Front  $\frac{1}{4}$ , Right Back  $\frac{1}{8}$ , Left Back  $\frac{1}{2}$ , Left Front  $\frac{1}{8}$ .

Height of Couplers.—Front 32, 33.

[fol. 92] IN UNITED STATES DISTRICT COURT

DEFENDANT'S EXHIBIT No. 8.—Filed April 26, 1922

The Baltimore and Ohio System

Locomotive Inspection Report

Locomotive, Number 2541; Initial, B. & O.

Instructions.—Each locomotive and tender must be inspected after each trip or day's work, and report made on this form, whether

needing repairs or not. Proper explanation must be made hereon for failure to repair any defects reported, and the form approved by foreman, before the locomotive is returned to service.

Engineers must carefully inspect their locomotive and tender, and report work needed.

No attention will be given verbal reports or reports not signed by engineman.

Train No. 4, Inspected at Halloway. Time, 1.30 p. m. Date, 9-2, 1920.

Line —.

No. —.

#### Repairs Needed.

1. Clean out flues, R. S. Lowell.
2. Refill all grease cellars on left side, C. Reynolds.
3. Tighten left steam chest cover, it leaks steam bad, Guthrie.
4. Clean out oil cups on air pumps, Cropp.

Condition of Injector, Right, good.

Condition of Injector, Left, good.

Condition of Water Glass, good.

Condition of Gauge Cocks, good.

Condition of Valves, good.

Condition of Cylinder Packing, good.

Condition of Piston Rod Packing, Right, good.

Condition of Piston Rod Packing, Left, good.

Condition of Valve Stem Packing, Right, good.

Condition of Valve Stem Packing, Left, good.

Condition of Driver Box Wedges, good.

Condition of Air Sanders, good.

Condition of Bell Ringer, good.

Condition of Brakes, Driver, good.

Condition of Brakes, Tender, good.

[fol. 93] Main Reservoir Pressure, 90 Pounds.

Brake Pipe Pressure, 70 Pounds.

Safety Valve Lifts at 205 Pounds.

Safety Valve Seats at 200 Pounds.

Condition of Safety Appliances: —.

Steaming Qualities, good.

Heated Bearings, rep.

Name of Fireman, Brown; Signature, Hamilton; Occupation, Engineer.

The above work has been performed, except as noted, and the report is approved.

W. O. Kennedy, Foreman.

NOTE.—Proper explanation should be made on the back of this form for failure to repair any defects reported.

## IN UNITED STATES DISTRICT COURT

DEFENDANT'S EXHIBIT No. 9—Filed April 26, 1922

The Baltimore and Ohio System

## Locomotive Inspection Report

Locomotive, Number 2541; Initial, B. &amp; O.

**Instructions.**—Each locomotive and tender must be inspected after each trip or day's work, and report made on this form, whether needing repairs or not. Proper explanation must be made hereon for failure to repair any defects reported, and the form approved by foreman, before the locomotive is returned to service.

Engineers must carefully inspect their locomotive and tender, and report work needed.

[fol. 94] No attention will be given verbal reports or reports not signed by engineman.

Train No. —. Inspected at —. Time, — m. Date, 9-2  
1920.

Line, —.

No. —.

## Repairs Needed.

1. Boiler, good.

O. D. Hinde, Inspector.

The above work has been performed, except as noted, and the report is approved.

A. Hooper, Foreman.

**NOTE.**—Proper explanation should be made on the back of this form for failure to repair any defects reported.

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## DEFENDANT'S EXHIBIT No. 12

## Annual Locomotive Inspection and Repair Report

June, 1920.

Locomotive, Number 2541; Initial, B. &amp; O.

United States Railroad Administration

W. G. McAdoo, Director General of Railroads

Baltimore and Ohio Railroad

In accordance with the act of Congress approved February 17, 1911, as amended March 4, 1915, and the rules and instructions

issued in pursuance thereof and approved by the Interstate Commerce Commission, all parts of locomotive No. 2541, including the boiler and its appurtenances, were inspected on June 3, 1920, at Mt. Clare Balto, Md., and all defects disclosed by said inspection have been repaired, except as noted on the back of this report.

- [fol. 95] 1. Date of previous hydrostatic test, 10-7-19.  
 2. Date of previous removal of caps from flexible stay bolts, 2-19-19.  
 3. Date of previous removal of flues, 3-14-18.  
 4. Date of previous removal of all lagging, 11-13-15.  
 5. Hydrostatic test pressure of 257 pounds was applied.  
 6. Were caps removed from all flexible stay bolts? Yes.  
 6-A. Were flexible stay bolts hammer tested? Yes.  
 7. Were all flues removed? Yes. Number removed 282 Small.  
 8. Condition of interior of barrel, Good.  
 9. Was all lagging removed? No.  
 10. Condition of exterior of barrel, Not inspected.  
 11. Was boiler entered and inspected? Yes.  
 12. Was boiler washed? Yes. Water glass cocks and gauge cocks cleaned? Yes.  
 13. Condition of crown stays and stay bolts, Good, Good.  
 14. Condition of sling stays and crown bars, Not used, Not used.  
 15. Condition of firebox sheets and flues, Good, Good.  
 16. Condition of arch tubes, Good. Water bar tubes, Not used.  
 17. Condition of throat braces, Good.  
 18. Condition of back head braces, Good.  
 19. Condition of front flue sheet braces, Good.  
 20. Were fusible plugs removed and cleaned? Not used.  
 21. Were steam leaks repaired? Yes.

#### Item 5 & 5A.

I certify that the above report is correct.

J. Ryan, Jr., Inspector. F. A. Oyle, Inspector.

22. Were steam gauges tested and left in good condition? Yes.  
 23. Safety valves set to pop at 205 pounds, 208 pounds, None pounds.  
 24. Were both injectors tested and left in good condition? Yes.  
 25. Were steam leaks repaired? Yes.

[fol. 96] 26. Hydrostatic test of 175 pounds applied to main reservoirs.

- 48 Tee iron bolts and 2 Tee irons removed, and 48 tap expansion radials applied.  
 27. Condition of brake and signal equipment, Good, Good.  
 28. Were drawbar and drawbar pins removed and inspected? Yes, Yes.  
 29. Condition of draft gear and draw gear, Good, Good.  
 30. Condition of driving gear, Good.  
 31. Condition of running gear, Good.  
 32. Condition of tender, Good.

I certify that the above report is correct.

G. W. Smith, Inspector.

STATE OF MARYLAND,

City of Balto., ss:

Subscribed and sworn to before me this 5th day of June, 1920,  
by J. Ryan Jr., F. A. Oyle, inspectors of the Balto. & Ohio RR. Company.

Walter Graves, Notary Public.

My Commission expires June 6, 1922.

The above work has been performed and the report is approved.

A. Merbuck, Officer in Charge.

[fol. 97]

IN UNITED STATES DISTRICT COURT

PETITION FOR WRIT OF ERROR—Filed July 26, 1922

To the Honorable D. C. Westenhaver, Judge of said court:

Now comes the Baltimore & Ohio Railroad Company, defendant herein, by Tolles, Hogsett, Ginn & Morley, its attorneys, and feeling itself aggrieved by the final judgment of this Court entered against it and in favor of Freda Groeger, Administratrix of the estate of John C. Groeger, deceased, on the 15th day of June, 1922, hereby prays that a writ of error may be allowed it from the United States Circuit Court of Appeals to the Sixth Circuit to the District Court of the United States for the Northern District of Ohio, Eastern Division, and in connection with this petition petitioner herewith presents his assignment of errors.

The petitioner further prays that an order of supersedeas may be entered herein pending the final disposition of the costs and that an amount of the security may be fixed by the order allowing the writ of error.

Tolles, Hogsett, Ginn & Morley, Attorneys for Plaintiff in Error.

IN UNITED STATES DISTRICT COURT

ASSIGNMENT OF ERRORS—Filed July 26, 1922

Now comes the Baltimore and Ohio Railroad Company, defendant herein, and in connection with its petition for a writ of error says that in the record, proceedings and final judgment aforesaid manifest error has intervened to the prejudice of the defendant, to-wit:

1. The Court erred in overruling the motion of the defendant made [fol. 98] at the conclusion of plaintiff's testimony to direct the jury to return a verdict in defendant's favor.

2. The Court erred in overruling the motion of the defendant at the conclusion of all the evidence to direct the jury to return a verdict in its favor.

3. The Court erred in excluding the following evidence offered by the defendant:

"Q. Have you the means of knowing what the reputation of Mr. Groeger was with regard to the manner in which he operated his engine so far as water conditions are concerned?

A. Yes, sir."

Mr. Chapman: I object.

The Court: Objection sustained.

Mr. Kinder: Exception. Defendant offers to prove by the witness, if permitted to answer, that the answer would be yes.

Q. What was that reputation?

Mr. Chapman: Object.

The Court Sustained.

Mr. Kinder: Defendant offers to prove by the witness, if permitted to answer, that the witness would testify that Groeger had the reputation of being a low water man. In other words, that he had the reputation of operating engines with water lower than safety required."

4. The Court erred in its charge to the jury as follows:

(a) In leaving to the jury the assignments of negligence that the boiler was weak, defective, unsafe and leaky, and that there was not adequate and sufficient inspection of the engine, the charge of the Court in these respects being as follows:

"Plaintiff claims that the defendant was guilty of negligence and carelessness in causing, permitting and allowing a dangerous, unsafe and insufficient condition to be and remain in and about the crown sheet of said boiler, whereby it was weakened, defective, unsafe and leaky, and that this was due to having previously been overheated and to the breaking of certain stay and crown bolts therein. I am submitting it to you in my own words, as I understand the plaintiff's contention, and not in the language of the claims made in the plaintiff's petition."

[fol. 99] "The other averments of negligence, namely, that the defendant failed to furnish the decedent with a reasonably safe place to work, and that it was negligent and careless in failing and neglecting to make adequate and sufficient inspection of said engine and its equipment, are related to the two averments of negligence which I am submitting to you for consideration. If the defendant failed, as charged, in either one or the other of those allegations of negligence that I am submitting to you, then it would have failed to have provided a reasonably safe place for the plaintiff to perform his abor; but if it did not so fail, then there is nothing in the averment that the defendant failed to furnish a reasonably safe place to work. And

likewise as to the failure to make adequate inspection. If the plaintiff failed in one or the other or both of the respects as charged and as I am submitting, if you find whether or not it did from the evidence, then the fact that it may have inspected it, and no matter how careful that inspection might have been, it would, nevertheless, be liable because of the failure to discover these defects, or, if it discovered them, of its failure to correct them."

"If the engine, as to the crown sheet was, in fact, permitted to be or to become in a defective, dangerous or unsafe condition, in such a condition that it was not safe to operate in service, or in such a condition that it could not be employed in the active service of the carrier in moving traffic without unnecessary peril to life or limb, that would be a violation of its duties; and if, as a result of such violation of its duties, the explosion occurred, or such failure was a contributing cause, or a direct and proximate cause, along with others, to the explosion and the resultant injury, the defendant would be liable."

(b) In leaving to the jury the question of negligence based upon the fact that defendant's engine was not equipped with a fusible plug, under the charge as follows:

"Plaintiff further charges that the defendant was negligent and careless in causing and permitting said boiler and appurtenances thereto to be used in interstate commerce when the same were not in [fol. 100] proper and safe condition for operation in the service to which they were put, without unnecessary peril to life and limb, because the defendant had failed and neglected to equip said boiler with a fusible plug to prevent the explosion of said boiler."

"(2) It being conceded that the defendant had failed to install and equip this locomotive engine with a fusible safety plug, it will be for you to say whether or not the standard of duty imposed by law upon the defendant, to see that any locomotive engine propelled by steam in use on its road in interstate commerce was in a proper condition and safe to operate in the service to which it was put, that the same might be employed in the active service in moving traffic without unnecessary peril to life or limb, was violated by the failure to equip this engine with a fusible safety plug. Plaintiff asserts that it was a violation of the duty imposed by law upon the defendant not so to equip its engine; the defendant asserts the contrary, and that will be the issue to determine under the evidence as I shall state it to you, and if so, whether that was the proximate cause or one of the proximate causes of this injury. The defendant denies these charges of negligence; that places the burden of proof upon the plaintiff, and the plaintiff must sustain that burden by a preponderance of the evidence."

"Now, as to the failure to install a fusible plug, that depends upon different considerations. In other words, whether the standard of safety which is prescribed by that act requires a fusible plug depends upon somewhat different considerations, as to which it is my duty to charge you. If you shall say and find that the standard of duty im-

posed by the law required a fusible safety plug to be installed, then the absence of the fusible safety plug would impose upon the defendant here an absolute liability, and the plaintiff would be entitled to recover if the absence of it contributed in whole or in part to cause the explosion and the resulting death."

(e) In leaving to the jury to determine (1) the standard of duty imposed by the Boiler Inspection Act, and (2) the question of whether the failure of the defendant to install a fusible plug was negligence under the standard which the jury, by the Court's charge was directed to determine, under the charge as follows:

[fol. 101] "The law does not say that locomotive engines thus used shall have fusible plugs in them. The Interstate Commerce Commission has authority to prescribe regulations for inspections and for equipment under the Boiler Inspection Act, and the Interstate Commerce Commission has not prescribed as a requirement that fusible safety plugs shall be installed on locomotive engines. It becomes, then, a question to be determined by you under the facts and circumstances of this case whether or not the duty to put locomotive boilers in proper condition so as to make them safe requires the installation of a fusible safety plug. Obviously, new appliances and new inventions may be developed from year to year and from time to time for the safe operation of machinery and of locomotive engines and boilers; whether or not they are feasible, and if feasible, whether or not it is practicable to install them are open questions. That question is not to be determined by looking backwards after an accident, but by looking forward.

"An interstate carrier, as well as any railroad carriers, owes the duty, of course, of availing itself of the best mechanical contrivances and inventions in known practical use which are or would be effective in making safe a locomotive boiler as against explosions. It is not bound to introduce a new appliance the moment somebody suggests it or discovers it, but is entitled to a reasonable time and opportunity to test it out and make any changes.

"Such I conceive to be the rules under which you are here to determine whether or not the standard of duty in making this engine safe did or did not require installation of a fusible plug. I say to you it is and was the duty of the defendant to avail itself of the best mechanical contrivances and inventions in known practical use which were or are effective in making the boilers safe as against explosions. Now, the question will be whether or not the fusible plug, the existence of which has been known for many years, is in practical use and is reasonably effective for the purpose for which it is intended. Are the limitations upon its use, namely, the claimed tendency to encourage negligence by the engineer in the operation and conduct of a locomotive, the risks and hazards incident thereto towards the fireman and other employes, the inconveniences, burdens and perhaps dangers from having engines and trains go dead upon a highway of commerce being used at the same time by other engines and trains,—I say, are these considerations offset

[fol. 102]

against the other considerations which are claimed on behalf of the plaintiff? Are they of such a nature as takes the fusible plug as a means of safety upon an engine out of the category of the best mechanical contrivances and inventions known in practical use and effective as a means of safety in preventing boiler explosions?

"In determining that you will take into consideration all the facts and circumstances of the case, and the practice so far as it has been proven to you among railroad men, reasonably prudent and careful railroad operators, what they have done and what their judgment is *in regard to the matter*, and determine whether or not the fusible safety plug under the law as I have stated it to you was proper and necessary to put this engine in proper and safe condition to operate, and if the operation of it without such fusible safety plug created an unnecessary peril to the life and limb of the employees. If you shall find, under the charge that I have given you, that a fusible safety plug was required by that standard, and that it was a mechanical means and contrivance in known practical use and effective more than was any other that had been installed by the defendant on this engine, then its absence would be a violation of the Boiler Inspection Act, and if the explosion resulted in whole or in part because of the absence of the fusible plug, and the decedent thereby met his death, plaintiff would be entitled to recover."

(d) In instructing the jury that under the Boiler Inspection Act defendant was required to avail itself of the best mechanical contrivances and inventions in known practical use which are or would be effective in making safe a locomotive boiler as against explosion, as follows, to wit:

"An interstate carrier, as well as any railroad carrier, owes the duty, of course, of availing itself of the best mechanical contrivances and inventions in known practical use which are or would be effective in making safe a locomotive boiler as against explosions. It is not [fol. 103] bound to introduce a new appliance the moment somebody suggests it or discovers it, but is entitled to a reasonable time and opportunity to test it out and make any changes."

"If you shall find, under the charge that I have given you, that a fusible safety plug was required by that standard, and that it was a mechanical means and contrivance in known practical use and effective more than was any other that had been installed by the defendant on this engine, then its absence would be a violation of the Boiler Inspection Act, and if the explosion resulted in whole or in part because of the absence of the fusible plug, and the decedent thereby met his death, plaintiff would be entitled to recover."

(e) In leaving to the jury the question of whether or not the seven broken stay bolts were the proximate or contributing proximate cause of the explosion, under the charge as follows:

"I have said to you, and I repeat, that the negligent or wrongful conduct of the defendant must be either the sole or proximate cause

of the decedent's death, otherwise the plaintiff will not be entitled to recover. And by a proximate cause in that connection is meant a cause except for the existence of which the explosion would not have occurred. To be more specific, and as applied to one aspect of the case, complaint is made that in the crown sheet of this boiler there were six broken stay-bolts and one crown bolt, and that two of these broken stay-bolts were adjacent to each other, whereas the inspection requirements of the Interstate Commerce Commission regulations forbid the use of an engine under the Boiler Inspection Act when there are five or more broken bolts, or where there are two broken bolts contiguous to each other. Even if it should be proved that that requirement of the law was violated, the plaintiff would not be entitled to recover by reason of such violation unless you should further find from a preponderance of the evidence that this specific violation, these specific defects, was either the sole or one of the causes but for the existence of which the explosion would not have taken place. If the existence of these broken stay-bolts had nothing to do with causing the explosion, then you should disregard their existence because, as I say to you, the negligent or wrongful conduct which [¶. 104] you may find by a preponderance of the evidence the defendant is guilty of, must have been either the sole or one of the proximate causes of the explosion and of the resultant death of plaintiff's decedent."

(f) In instructing the jury that if plaintiff's decedent was guilty of contributory negligence, the defendant if found guilty of negligence would not be entitled to a reduction in the amount of damages by reason of the contributory negligence of plaintiff's decedent, as follows, to wit:

"If John Groeger met his death as a result of the failure of the defendant in either one or both of the respects which I am submitting to you as issues of fact to be determined under the evidence, then he will not be held to have assumed the risk of injury from either or both of those causes, nor will any negligence on his part which may have contributed to cause these injuries or his death bar the plaintiff here from recovery, nor be taken into account by you in reducing or diminishing her damages."

5. The Court erred in entering judgment upon the verdict.
6. The verdict and judgment are contrary to law.

Wherefore, defendant prays that the judgment herein be reversed.

Tolles, Hogsett, Ginn & Morley, Attorneys for Defendant.

## [fols. 105 &amp; 106] IN UNITED STATES DISTRICT COURT

## ORDER ALLOWING WRIT OF ERROR—Filed July 26, 1922

This day came the defendant, by its attorneys, Tolles, Hogsett, Ginn & Morley, and filed herein and presented to the Court its assignment of errors and petition for the allowance of a writ of error intended to be urged by it, praying also that a transcript of the record and proceedings and papers upon which the judgment herein was rendered, duly authenticated, may be sent to the United States Circuit Court of Appeals for the Sixth Circuit, and that such other and further proceedings may be had as may be proper in the premises.

On consideration whereof, the Court does allow the writ of error upon the defendant giving bond according to law in the sum of Eleven Thousand Dollars (\$11,000.00), to the approval of this Court, which bond shall act as a supersedeas.

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BOND ON WRIT OF ERROR FOR \$11,000—Approved; omitted in printing

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## [fol. 107] IN UNITED STATES DISTRICT COURT

## WRIT OF ERROR AND RETURN—Filed July 26, 1922

## UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT

UNITED STATES OF AMERICA,  
Sixth Judicial Circuit, ss:

The President of the United States to the Honorable the Judge of the District Court of the United States for the Northern District of Ohio, Greeting:

Because in the record and proceedings, as also in the rendition of the judgment of a plea which is in the said District Court, before you, or some of you, between Freda Groeger, Administratrix of the Estate of John C. Groeger, deceased as plaintiff and Baltimore and Ohio Railroad Company as defendant a manifest error hath happened, to the great damage of the said Baltimore and Ohio Railroad Company as by its complainant appears. We being willing that error, if any hath been, should be duly corrected, and full and speedy justice done to the parties aforesaid in this behalf, do command you, if the judgment be therein given, that then under your seal, distinctly and openly, you send the record and proceedings aforesaid, with all things concerning the same, to the United States Circuit Court of

Appeals for the Sixth Circuit, together with this writ, so that you have the same at Cincinnati, in said Circuit, on the\* 25th day of August next, in the said Circuit Court of Appeals, to be then and there held, that the record and proceedings aforesaid being inspected, the said Circuit Court of Appeals may cause further to be done therein to correct that error, what of right, and according to the laws and customs of the United States should be done.

[fol. 108] Witness the Honorable William Howard Taft, Chief Justice of the United States, the 26th day of July in the year of our Lord one thousand nine hundred and twenty-two, and of the Independence of the United States of America the one hundred and forty-seventh.

B. C. Miller, Clerk of the District Court of the United States for the Northern District of Ohio, by M. E. Bauman, Deputy Clerk. (Seal.)

Allowed by D. C. Westenhaver, Judge of the District Court.

**UNITED STATES OF AMERICA,  
Northern District of Ohio, ss:**

In pursuance to the command of the within writ of error, I, B. C. Miller, Clerk of the United States District Court within and for said District, do herewith transmit under the seal of said court, a full, true and complete copy of the record and proceedings of said court in the cause and matter in said writ of error stated, together with all things concerning the same, in accordance with the preceipe filed, to the United States Circuit Court of Appeals for the Sixth Circuit.

There is annexed hereto and made part of this return the writ of error and citation to said defendant in error.

Witness my official signature and the seal of said court at Cleveland, in said District, this — day of —, A. D. 191-, and in the 14- year of the Independence of the United States of America.

— — —, Clerk, by — — —, Deputy Clerk.

[fols. 109 & 110] CITATION—In usual form, showing service on  
E. C. Chapman; Filed July 27, 1922; omitted in printing

**[fol. 111] IN UNITED STATES DISTRICT COURT**

**ORDER WITHDRAWING CERTAIN EXHIBITS—Filed July 26, 1922**

It having been made to appear to the Court that it is impracticable to attach to the transcript of the record defendant's exhibits 1, 10 and 11, on account of the size and character of said exhibits, it is

\*Not exceeding 30 days from the day of signing the citation.

hereby ordered that the attaching of such exhibits to the transcript of the record herein may be dispensed with and that they may be withdrawn for use in the Court of Appeals.

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IN UNITED STATES DISTRICT COURT

STIPULATION RE CERTIFICATION OF RECORD—Filed July 26, 1922

In accordance with Section 7 of Rule 44 of the general rules of this Court, it is hereby agreed that the record as presented to the Clerk by the printer, may be certified by the Clerk as required by law and the rules of the appellate court, as a true, full and complete copy of the original pleadings, papers and orders used on the trial of this cause, as set forth in the precipice for transcript, without further comparison by the clerk.

E. C. Chapman, Attorney for Plaintiff. Tolles, Hogsett, Ginn & Morley, Attorneys for Defendant.

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[fol. 112] IN UNITED STATES DISTRICT COURT

PRECIPLE FOR TRANSCRIPT—Filed July 26, 1922

To the Clerk:

Please prepare transcript of record for the Circuit Court of Appeals in the above entitled cause, and include therein the following papers and orders:

Petition.

Summons.

Marshal's Return of Summons.

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And deliver all papers to the Gates Legal Publishing Company for printing.

Tolles, Hogsett, Ginn & Morley, Attorneys for Defendant.

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[fols. 113 & 114] IN UNITED STATES DISTRICT COURT

ORDER EXTENDING TIME—Entered Aug. 3, 1922, by Judge Westenhaver

On application of defendant and for good cause shown, it is ordered that the time for filing the transcript of record in the United States Circuit Court of Appeals be extended to September 8, 1922.

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[fol. 115] IN UNITED STATES DISTRICT COURT

CERTIFICATE OF CLERK

NORTHERN DISTRICT OF OHIO, ss:

I, B. C. Miller, Clerk of the District Court of the United States for said District, do hereby certify that the annexed and foregoing pages contain a full, true and complete copy of the final record, including the bill of exceptions in narrative form, petition for writ of error, assignment of errors and bond on writ of error, and all proceedings in said cause, in accordance with the preceipe for transcript filed by plaintiff in error, the orginals of which, except certain exhibits withdrawn by leave of Court, are now in my custody as Clerk of said Court.

There is also annexed to and transmitted with such transcript of record the writ of error and the citation issued and allowed in this case.

In testimony whereof, I have hereunto signed my name and affixed the seal of said Court, at Cleveland, in said District, this — day of \_\_\_\_\_, A. D., 1922, and in the 147th year of the Independence of the United States of America.

B. C. Miller, Clerk, by M. E. Bauman, Deputy Clerk. (Seal.)

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[fol. 116] IN UNITED STATES DISTRICT COURT

AMENDED PETITION—Filed Nov. 26, 1921

Plaintiff, by leave of counsel first had and obtained, files this her amended petition, and for her cause of action says that she is the duly appointed, qualified and acting administratrix of the estate of John C. Groeger, deceased, by virtue of her appointment by the County Court of Marshall County, West Virginia.

That defendant is now and was at all times hereinafter referred to a railroad corporation organized and existing under the laws of some State other than Ohio and maintaining various lines and divisions of railroad, one of said lines extending from the State of West Virginia into the State of Ohio and into the City of Cleveland, Ohio; that defendant also operates other lines of railroad, one of said lines or divisions extending from Holloway, Ohio, to Brooklyn Junction, West Virginia; that defendant at all times hereinafter referred to was a common carrier of freight and passengers and it and this plaintiff's decedent were engaged in interstate commerce, and by reason thereof this cause of action is governed and controlled by the Federal Employers' Liability Act of April 22, 1908, and its amendments, and the Federal Boiler Inspection Act and its amendment of 1915.

For her cause of action against defendant, plaintiff says that on September 3, 1920, and for some time prior thereto, her decedent, John C. Groeger, was in the employ of defendant as locomotive engineer; that on said date, in the performance of his duties, her decedent was acting as engineer for defendant company on a freight train running from Holloway, Ohio, to Brooklyn Junction, West Virginia, said freight train hauling a number of empty cars from the State of Ohio into the State of West Virginia; that on said date her decedent had started with a train of cars from Holloway, Ohio, and proceeded on said division to a point a short distance north of Proctor, West Virginia, when suddenly and without any warning, and without any knowledge on the part of her decedent of impending danger, the boiler of the engine exploded with great violence, resulting in immediate death to plaintiff's decedent.

Plaintiff says that the engine which her decedent was operating, which she believes was known as No. 2541, was in a dangerous, [fol. 117] unsafe and insufficient condition in that the crown sheet of said boiler had been weakened by the previous overheating of same and that said crown sheet leaked during the operation of said engine; that, furthermore, the water glass indicator of said engine was in a defective and unsafe condition in that the same indicated water to be the proper height in said boiler when said boiler was low and had insufficient water; that furthermore, the water in said boiler used by defendant was unfit for the purpose, in that the same contained foreign matter, which caused said water to foam in said boiler, thereby indicating, when the gauge cocks were opened, that the water was of sufficient height in said boiler above said crown sheet, when, as a matter of fact, same was below said crown sheet as aforesaid; that, furthermore, said boiler and engine were not safe to operate in the service to which they were put without unnecessary peril to the life or limb of the operator, in that said boiler was not equipped with a fusible plug which would prevent explosion of said boiler under the conditions hereinbefore set forth.

Plaintiff says that said fusible plug was in general use in boilers and locomotives and that its use was well known, and that it would prevent the explosion and resulting injury to life and limb which occurred in said locomotive.

Plaintiff says that her decedent at and prior to his death was guilty of no negligence on his part in any way contributing thereto, but that, on the contrary, his death was due wholly and solely to and was the direct and proximate result of the negligence and carelessness of defendant in the following particulars, to wit:

First. Defendant was guilty of negligence and carelessness in causing, permitting and allowing a dangerous, unsafe and insufficient condition to be and remain in its ways, works and appliances, in that the crown sheet of said boiler was weakened, defective, unsafe and leaking by reason of being overheated prior to the grievances herein complained of.

Second. Defendant was guilty of negligence and carelessness in causing, permitting and allowing a dangerous, unsafe and insufficient condition to be and remain in said engine in that the water glass indicator placed on said engine for the protection of plaintiff's decedent indicated that the boiler of said engine had sufficient water at times when said boiler lacked sufficient water.

[fol. 118] Third. Defendant was guilty of negligence and carelessness in failing and neglecting to furnish plaintiff's decedent a reasonably safe place in which to perform his labor in that said engine and its equipment were in a defective and unsafe condition as aforesaid.

Fourth. Defendant was guilty of negligence and carelessness in failing and neglecting to make an adequate and sufficient inspection of said engine and its equipment to the end that its dangerous and unsafe condition would be disclosed.

Fifth. Defendant was guilty of negligence and carelessness in causing and permitting said boiler and appurtenances thereto to be used in interstate commerce when the same were not in proper condition and safe to operate in the service to which they were put without unnecessary peril to life or limb, in that defendant failed and neglected to equip said boiler with a fusible plug to prevent the explosion of said boiler as hereinbefore set forth.

Sixth. Defendant was guilty of negligence and carelessness in causing and permitting unfit and improper water to be used in said engine, in that the same contained foreign matter which caused it to foam and thereby indicate in the gauge cock that the water in said boiler was of sufficient height when the same was below the top of the crown sheet, thereby endangering the life and limb of the operator of said locomotive.

Plaintiff says that her decedent, John C. Groeger, at and prior to his death was thirty-five years of age, robust and strong, and earning and capable of earning about Three Hundred Dollars (\$300.00) per month in his occupation as locomotive engineer for defendant; that he left surviving him and wholly dependent upon him for support his widow, Freda Groeger, the administratrix herein, and two minor children, Irene, of the age of ten years, and Gertrude, of

the age of seven years; that by reason of the negligence and carelessness of defendant as aforesaid, the widow and children of plaintiff's decedent have been deprived of their support, all to their damage in the sum of Twenty-five Thousand Dollars (\$25,000.00).

Wherefore, plaintiff, on behalf of the widow and children of decedent, prays judgment against defendant in the sum of Twenty-five Thousand Dollars (\$25,000.00), with costs of this action.

E. C. Chapman, Attorney for Plaintiff.

[fol. 119] Jurat showing the foregoing was duly sworn to by E. C. Chapman omitted in printing.

**IN UNITED STATES DISTRICT COURT**

**STIPULATION RE TRANSCRIPT OF RECORD**

It appearing that the Transcript of the record heretofore made up contains the petition of the plaintiff but that through oversight the amended petition was not included therein, it is hereby stipulated and agreed by counsel for the parties hereto that said amended petition may be printed upon precipice therefor being filed by the defendant with the Clerk of the United States District Court, Northern District of Ohio, and upon certification by said Clerk filed in the United States Circuit Court of Appeals for the Sixth Circuit, as a part of the transcript of record as if originally included therein.

Tolles, Hogsett, Ginn & Morley, Attorneys for Plaintiff in Error. E. C. Chapman, Attorneys for Defendant in Error.

[fols. 120 & 121] **IN UNITED STATES DISTRICT COURT**

**ORDER TO FILE AMENDED PETITION**

Upon application of plaintiff in error and for cause shown, counsel for defendant in error consenting, it is hereby ordered that the printed copy of defendant in error's amended petition in the Court below be filed as part of the transcript of record as if originally included.

\_\_\_\_\_, Judges of the U. S. Circuit Court of Appeals.

Approved: Tolles, Hogsett, Ginn & Morley, Attorneys for Plaintiff in Error. E. C. Chapman, Attorney for Defendant in Error.

## IN UNITED STATES DISTRICT COURT

SUPPLEMENTAL PRECIPCE FOR TRANSCRIPT—Filed Sept. 1, 1922

To the Clerk:

Please prepare transcript of record for the Circuit Court of Appeals in the above entitled cause, and include therein the following papers and orders:

1. Amended Petition.
2. Stipulation.
3. Order.

And deliver all papers to The Gates Legal Publishing Company for printing.

Tolles, Hogsett, Ginn & Morley, Attorneys for Defendant.

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[fol. 122] IN UNITED STATES DISTRICT COURT

## CERTIFICATE OF CLERK

I, B. C. Miller, Clerk of the District Court of the United States within and for said District, do hereby certify the foregoing to be a true copy of the Amended Petition heretofore inadvertently omitted from the transcript of record in the above entitled cause, and of the Supplemental Precipe for Transcript. Order and Stipulation, and that the same has been compared with and is correctly copied from the originals now on file in my office, pursuant to said Stipulation.

Witness my official signature and the seal of said Court, at Cleveland, in said District, this 11th day of September, A. D. 1922, and in the One Hundred and Forty-seventh year of the Independence of the United States of America.

B. C. Miller, Clerk, by M. C. Bowman, Deputy Clerk.

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[fol. 123] IN UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT

## APPEARANCE OF COUNSEL—Filed Aug. 30, 1922

Arthur B. Mussman, Clerk of said Court:

Please enter my appearance as counsel for the Baltimore & Ohio Railroad Co.

Tolles, Hogsett, Ginn & Morley, W. T. Kinder, of Counsel.  
J. P. Wood.

## IN UNITED STATES CIRCUIT COURT OF APPEALS

## ORDER TO FILE AMENDED PETITION—Filed Oct. 4, 1922

Upon application of plaintiff in error and for cause shown, counsel for defendant in error consenting, it is hereby ordered that the printed copy of defendant in error's amended petition in the Court below be filed as part of the transcript of record as if originally included.

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## [fol. 124] IN UNITED STATES CIRCUIT COURT OF APPEALS

## SUBMISSION OF CAUSE—Filed March 3, 1924

This cause is argued by Mr. W. T. Kinder for the plaintiff in error and by Mr. E. C. Chapman for the defendant in error and is submitted to the Court.

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## IN UNITED STATES CIRCUIT COURT OF APPEALS

## JUDGMENT—Filed April 13, 1923

Error to the District Court of the United States for the Northern District of Ohio

This cause came on to be heard on the transcript of the record from the District Court of the United States for the Northern District of Ohio, and was argued by counsel.

On consideration whereof, it is now here ordered and adjudged by this Court, that the judgment of the said District Court in this cause be and the same is hereby affirmed with costs.

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## [fol. 125] IN UNITED STATES CIRCUIT COURT OF APPEALS

[Title omitted]

## OPINION—Filed April 13, 1923

Before Knappen, Denison, and Donahue, Circuit Judges

On the morning of September 3, 1920, a freight engine belonging to The Baltimore & Ohio Railroad Company, and engaged in the transportation of interstate traffic, exploded near Proctor, W. Va., killing John C. Groeger the engineer in charge of the engine, the fireman and the head brakeman, who constituted the engine crew at the time of the explosion. Freda Groeger, as administratrix of

the estate of John C. Groeger, deceased, brought an action in the district court against The Baltimore & Ohio Railroad Company to recover damages, under the Federal Liability Act, for wrongfully causing the death of her intestate.

The amended petition alleges several specific acts of negligence, two of which the trial court took from the jury because they were unsupported by any evidence. The others, being related to the same subject-matter, the court consolidated into two, which in substance are as follows: 1st. In permitting a dangerous condition to exist in the engine. 2d. In failing to equip this boiler with a fusible plug. The answer of the defendant admitted the formal averments of the [fol. 126] petition and denied each and every other allegation therein contained.

At the close of plaintiff's case, and again at the close of all the evidence, the defendant moved for a directed verdict, which motions were overruled by the court and exceptions noted. Exceptions were also taken by the defendant to certain rulings of the court and to specific parts of the court's charge to the jury.

The jury returned a verdict for the plaintiff. A motion for new trial was overruled and judgment entered upon the verdict.

DONAHUE, Circuit Judge:

It is contended upon the part of the plaintiff in error that this verdict is not sustained by any substantial evidence.

It is provided by Rule 25 of the Interstate Commerce Commission that:

"No boiler shall be allowed to remain in service when there are two adjacent staybolts broken or plugged in any part of the firebox or combustion chamber, nor when three or more are broken or plugged in a circle 4 feet in diameter, nor when five or more are broken or plugged in the entire boiler."

The uncontradicted evidence establishes the fact that at and prior to the time this boiler exploded there were seven staybolts broken. One staybolt at the forward part of the crown sheet; three intermediate stays on the right side of the crown sheet within a radius of 16 inches, two of which were adjacent. Three on the left side, two of which were within 8 inches of each other and the third within 12 inches of the other two.

The operation of this engine with these broken staybolts was in violation of Rule 25 of the Interstate Commerce Commission in that more than five bolts were broken; in that two of these broken bolts were adjacent; in that three of these bolts on the right side of the boiler were within a radius of eighteen inches and three on the left side of the boiler within a radius of eight inches. It is claimed, however, on the part of the plaintiff in error that there is no evidence whatever that these broken staybolts contributed in any way to the explosion but on the contrary that the testimony of experts tends to prove that they contributed in no way whatever to the tear of the crown sheet and the consequent explosion of the boiler.

Expert evidence in reference to the ultimate question of fact for [fol. 127] the determination of a jury may be helpful but is not controlling. Notwithstanding this expert evidence the question was one for the jury to decide from all the evidence whether these broken staybolts caused or contributed to the explosion. That question was properly submitted to the jury by the trial court.

Wholly apart from these broken staybolts there is sufficient evidence in this record as to the defective condition of this engine in other respects, to sustain the verdict of the jury.

It is claimed on behalf of the plaintiff in error that the explosion of this engine was caused by low water. There is evidence in this record tending to prove that the boiler was in a leaking condition; that "it was leaking up around the front and the side—the fire was dead and that when the door of the fire box was open the steam came out with a gush."

There is also evidence tending to prove that the engine took water at Foster's Tower about three miles from the place where it exploded; that water was supplied from the tank to the boiler by two injectors and that at Foster's Tower both of these injectors were working. If it were conceded that low water caused this explosion, the natural inference from this evidence would be that the engine was in such a defective and leaky condition that water could not be supplied fast enough by these two injectors to keep the crown sheet covered, although it appears from the testimony of the railroad company's master mechanic that with one injector working, the water would be kept above the crown sheet in the normal operation of the locomotive. The evidence also tends to prove the defendant was fully advised of the defective condition of this engine. When the train was at Moundsville, Groeger, the engineer, notified the defendant's train dispatcher that he was afraid of this engine and asked to be relieved of it, but the dispatcher ordered him to continue its use.

It is claimed, however, that this explosion was due solely to the manner in which this engine was operated and not to any defects therein; that if the water was low in this engine the engineer could readily have discovered that fact from the water glass and gauge cocks, and that as soon as the water became dangerously low it was his duty to stop the engine and draw the fire.

The presumption obtains that Gregor was exercising due care for his own safety. This presumption is strengthened by the evidence that he knew the engine was in such a defective condition that he was afraid of it and asked to be relieved from using it. There is no direct evidence in this record that he was negligent in any [fol. 128] respect. Nor does the inference that he was negligent necessarily follow from the facts admitted or proven in this case. It was, therefore, a question for the jury to determine whether this explosion was caused by the manner in which it was operated or by its defective condition in one or more of the particulars in which the evidence tends to show it was defective.

It is also claimed on behalf of the plaintiff in error that the court erred in submitting to the jury the question whether the failure to

equip with a fusible plug was a violation of the Safety Appliance Act, for the reason that is a question to be determined by the Interstate Commerce Commission. That Commission has made no rule or order in reference thereto other than Rule No. 14, which reads as follows:

"If boilers are equipped with fusible plugs they shall be removed and cleaned of scale at least once every month. Their removal must be noted on the report of inspection."

The fact, however, that the Interstate Commerce Commission has made no order requiring boilers to be equipped with these plugs is by no means conclusive of the question. It was said by the Supreme Court in Railway v. Donaldson, 246 U. S. 121, 128:

"We find nothing in the Boiler inspection Act to warrant the conclusion that there is no liability for an unsafe locomotive in view of the provisions of Section 2 of the Act, because some particular feature of the construction which has been found unsafe has not been disapproved by the Federal Boiler Inspector."

Section 2 of the Boiler Inspection Act provides that it shall be unlawful for any common carrier subject to this Act to use any locomotive engine propelled by steam power in moving interstate or foreign traffic, unless the boiler of the locomotive and appurtenances thereof are in proper condition and safe to operate in the service to which the same is put without unnecessary peril to life or limb. While the Interstate Commerce Commission is authorized to make rules and orders in furtherance of the enforcement of this law, nevertheless its failure to make a rule or an order covering every defective condition or construction within the meaning of Section 2 of the Boiler Inspection Act by no means relieves the carrier from complying with the provisions of that section.

This issue was presented by the pleadings but it is claimed on behalf of plaintiff in error, that the weight of the evidence directed [fol. 129] to that issue, establishes the fact that fusible plugs are not in general use by railroad systems; that they have never been accepted and used by master mechanics and locomotive engineers as standard equipment in locomotive service; that while fusible plugs present an element of safety, and would probably have prevented the explosion in this case, nevertheless they accumulate scale on the top of the plug, and this permits the plug to heat so that the soft metal will melt and run out, causing the engine to fail in service on the line, and that sometimes this results in injury to the fireman, if he should be firing just at the time the soft metal runs out of the plug, permitting the steam to blow the fire and hot cinders out of the door of the firebox and that the presence of a fusible plug tends to negligence on the part of the engineer in failing to keep sufficient water in the engine.

There is, however, substantial evidence in this regard tending to prove that fusible plugs are extensively used; that they may be rounded at the top, so that the scale will not accumulate thereon; that they are generally recognized as effective and reliable means

for preventing boiler explosions from low water and that if this engine had been equipped with a fusible plug this explosion would not have occurred, regardless of the other claimed defects. Upon this state of the proof, it was the duty of the court to submit this issue to the jury. This court has no authority to consider or determine the question of the weight of the evidence.

If, however, it were conceded that there is no substantial evidence in this record tending to prove that Section 2 of the Boiler Inspection Act requires that boilers generally should be equipped with a fusible plug, nevertheless the presence or absence of a fusible plug in this particular boiler was an important fact to be considered by the jury in determining whether this boiler, defective in other particulars, was or was not unsafe to operate in the movement of this train, transporting goods and merchandise in interstate commerce. There is substantial evidence in this record tending to prove that this boiler was defective in the particulars heretofore mentioned; that regardless of these defects, it might have been entirely safe to operate if it had been equipped with a fusible plug; but without such plug these defects would render it unsafe and dangerous to operate and unnecessarily imperil life and limb.

While the evidence does not disclose the information given to the train dispatcher by the engineer Groeger, when he asked to be relieved of this engine, as to the nature and extent of the defects, [fol. 130] nevertheless, the train dispatcher was advised that in the opinion of the engineer in charge, the engine was defective and dangerous and it was his duty to obtain full information in reference to these defects before ordering and directing that its use be continued for the balance of the trip. Whether he did this or not the defendant must be held to have had knowledge of these particular defects and also knowledge that this engine was not equipped with a fusible plug which, under the proofs of this case, would not only have mitigated the danger from these defects, but would have actually prevented the explosion.

In determining whether this particular boiler was then safe to operate in the service of the carrier in moving traffic, without unnecessary peril to life or limb, it was proper for the jury to take into consideration, in connection with the other evidence tending to prove its defective condition, the fact that this boiler was not equipped with a fusible plug. That being true, the charge of the court on this subject could not have been prejudicial to defendant.

For the reasons stated, the judgment of the district court is affirmed.

[fol. 131] IN UNITED STATES CIRCUIT COURT OF APPEALS

CLERK'S CERTIFICATE

I, Arthur B. Mussman, Clerk of the United States Circuit Court of Appeals for the Sixth Circuit, do hereby certify that the foregoing is a true and correct copy of the record and proceedings in the case of

Baltimore & Ohio Railroad Company, vs. Freda Groeger, Admx. of John C. Groeger, No. 3775, as the same remains upon the files and records of said United States Circuit Court of Appeals for the Sixth Circuit, and of the whole thereof.

In testimony whereof, I have hereunto subscribed my name, and affixed the seal of said Court, at the City of Cincinnati, Ohio, this 31st day of May, A. D. 1923.

Arthur B. Mussman, Clerk of the United States Circuit Court of Appeals for the Sixth Circuit. (Seal of the United States Circuit Court of Appeals, Sixth Circuit.)

[fol. 132] WRIT OF CERTIORARI AND RETURN—Filed Oct. 31, 1923

UNITED STATES OF AMERICA, ss:

[Seal of the Supreme Court of the United States.]

The President of the United States of America to the Honorable Judges of the United States Circuit Court of Appeals for the Sixth Circuit, Greeting:

Being informed that there is now pending before you a suit in which The Baltimore and Ohio Railroad Company is plaintiff in error, and Freda Groeger, Administratrix of the Estate of John C. Groeger, deceased, is defendant in error, No. 3775, which suit was removed into the said Circuit Court of Appeals by virtue of a writ of error to the District Court of the United States for the Northern District of Ohio, and we, being willing for certain reasons that the said cause and the record and proceedings therein should be certified by the said Circuit Court of Appeals and removed into the Supreme [fol. 133] Court of the United States, Do hereby command you that you send without delay to the said Supreme Court, as aforesaid, the record and proceedings in said cause, so that the said Supreme Court may act thereon as of right and according to law ought to be done.

Witness the Honorable William H. Taft, Chief Justice of the United States, the seventeenth day of October, in the year of our Lord one thousand nine hundred and twenty-three.

Wm. R. Stansbury, Clerk of the Supreme Court of the United States.

UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT,  
ss.

I, Arthur B. Mussman, Clerk of the United States Circuit Court of Appeals for the Sixth Circuit, do hereby certify that the transcript of the record of the proceedings of this Court in the within entitled case heretofore certified by me for filing in the Supreme Court of the United States was correct and complete as the same then appeared in this Court.

In pursuance of the command of the foregoing writ of certiorari I now hereby certify that on the 25th day of October, A. D. 1923, there

was filed in my office a stipulation in the above entitled case in the following words, to-wit:

UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT  
THE BALTIMORE & OHIO RAILROAD COMPANY, Plaintiff in Error,

vs.

FREDA GROEGER, Admx., etc., Defendant in Error

It is hereby stipulated and agreed by and between counsel herein that the transcript of the record in the above entitled matter now on file in the Supreme Court of the United States shall and may be taken as a return by the Clerk of this Court to the writ of certiorari hereinbefore granted by the Supreme Court of the United States.

Tolles, Hogsett, Ginn & Morley, Attorneys for Plaintiff in Error. E. C. Chapman, Attorney for Defendant in Error.

I further certify that the above is a true and correct copy of said stipulation and of the whole thereof. Witness my official signature and the seal of said Circuit Court of Appeals at the City of Cincinnati, Ohio, in said Circuit this 25th day of October, A. D. 1923.

Arthur B. Mussman, Clerk United States Circuit Court of Appeals for the Sixth Circuit. (Seal of the United States Circuit Court of Appeals, Sixth Circuit.)

[File endorsement omitted.]

[fol. 134] [Endorsed:] File No. 29,733. Supreme Court U. S., October Term, 1923. Term No. 423. The Baltimore & Ohio R. R. Co., Petitioner, vs. Freda Groeger, Adm'x, etc. Writ of certiorari and return. Filed Oct. 31, 1923.

(3675)

No. 113

HILLMAN

WALTER HILLMAN

CASE NO.

In the Supreme Court of the United States

October Term, 1922.

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**The BALTIMORE AND OHIO RAILROAD COMPANY,**  
**Petitioner,**

v.

**Frieda Gruener, Administratrix of the Estate of**  
**John C. Gruener, Deceased,**  
**Respondent.**

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**FOR WANT OF CONSIDERABLE MOTION,  
NOTICE AND BRIEF.**

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**R. H. Tolson,**

*Counsel for Petitioner.*

**W. T. Kinney,**

**J. P. Wood,**

**J. W. Knapp,**

*Of Counsel.*

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# In the Supreme Court of the United States

October Term, 1922.

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THE BALTIMORE AND OHIO RAILROAD COMPANY,  
*Petitioner,*

vs.

FREDA GROEGER, Administratrix of the Estate of  
John C. Groeger, Deceased,  
*Respondent.*

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## PETITION FOR WRIT OF CERTIORARI, MOTION, NOTICE AND BRIEF.

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S. H. TOLLES,

*Counsel for Petitioner.*

W. T. KINDER,

J. P. WOOD,

J. W. REAVIS,

*Of Counsel.*

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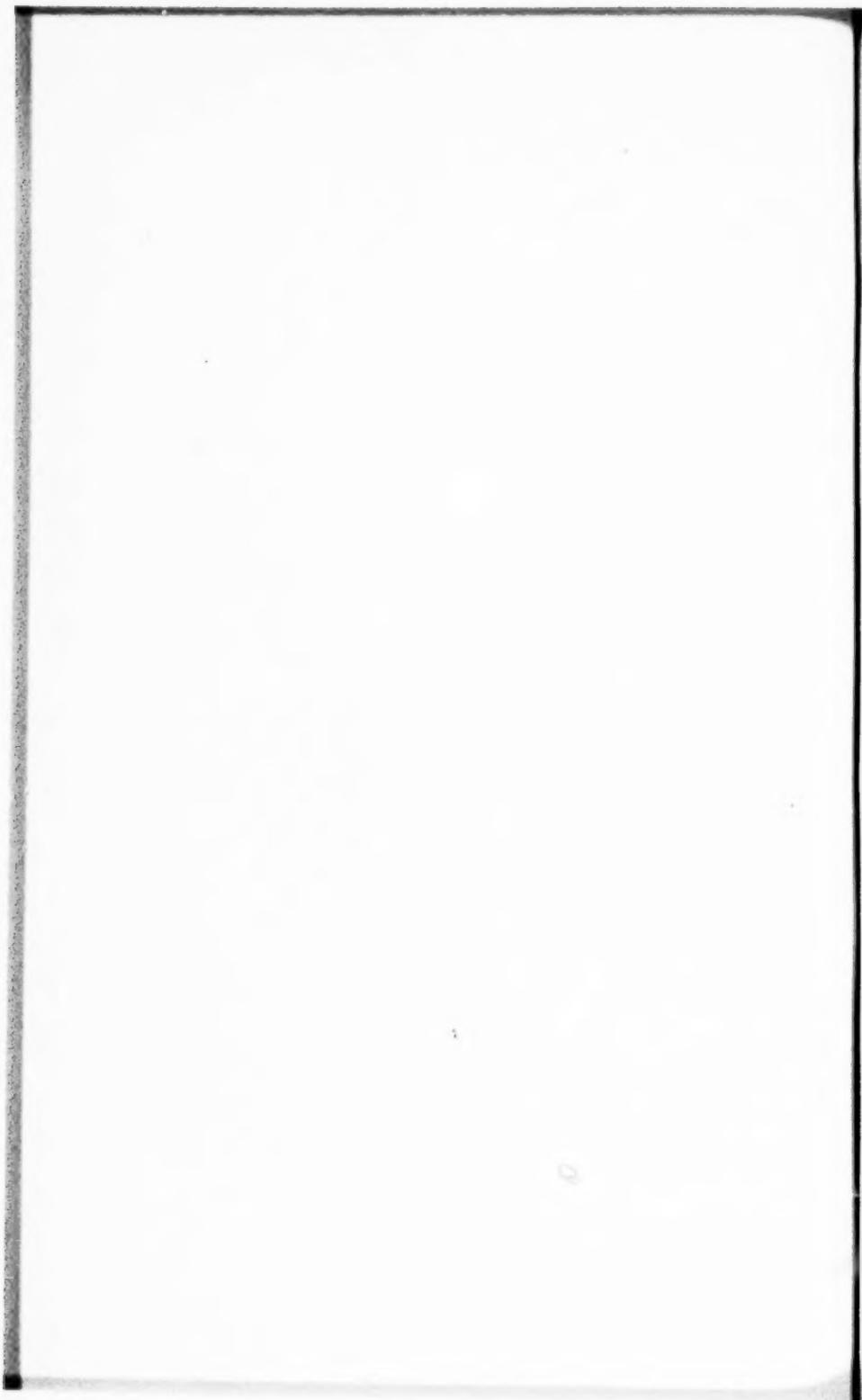
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# In the Supreme Court of the United States

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October Term, 1922.

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THE BALTIMORE AND OHIO RAILROAD COMPANY,

*Petitioner,*

vs.

FREDA GROEGER, Administratrix of the Estate of

John C. Groeger, Deceased,

*Respondent.*

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## **PETITION FOR WRIT OF CERTIORARI.**

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*To the Honorable the Supreme Court of the United States:*

The petition of The Baltimore and Ohio Railroad Company, for a writ of certiorari directed to the United States Circuit Court of Appeals for the Sixth Circuit, to bring before the Supreme Court the case of

THE BALTIMORE AND OHIO RAILROAD COMPANY,  
*Petitioner,* }  
vs.  
FREDA GROEGER, Admx. of the Estate of  
John C. Groeger, Deceased,  
*Respondent.* }

The said petitioner respectfully shows to the Court as follows:

(1) On February 15, 1921, the respondent brought an action against the petitioner in the United States District Court for the Northern District of Ohio, Eastern Division, to recover damages as administratrix of the Estate of John C. Groeger, deceased, for the alleged wrongful death of the said deceased caused by the explosion of the boiler of a locomotive of the petitioner which the deceased was operating as an engineer in its employ. On November 26, 1921, the respondent by leave of court filed an amended petition in said action.

(2) The action was brought under the Federal Employers' Liability Act of April 22, 1908, and its amendments, and the Federal Boiler Inspection Act and its amendments of 1915. The answer of the petitioner admitted that at the time of the decedent's death both he and it were employed in interstate commerce and the right of action asserted must, consequently, be governed and defined by the Federal statutes noted in so far as they are applicable.

(3) The facts of the case are briefly as follows: On the morning of September 3, 1920, John C. Groeger, an engineer employed by the petitioner and in charge of Engine No. 2541, left Holloway, Ohio, with a train for Brooklyn Junction, West Virginia, crossing the Ohio

River at Wheeling and proceeding by way of Moundsville, Chestnut Hill, Foster's Tower and Proctor. At or near Proctor, West Virginia, some three miles beyond Foster's Tower, the boiler of the engine exploded, resulting in the death of Groeger, the engineer, the fireman and the head brakeman who constituted the engine crew at the time of the explosion.

The principal ground of recovery relied on by the plaintiff was the fact that the engine involved did not have installed therein a *fusible plug*, which is a brass plug "with a square on the bottom of it and drilled out either five or six small holes or one large hole and filled with Babbitt metal or pewter or some soft substance."

(R. 20) It is inserted just above the crown-sheet and "acts as a supplemental safety valve \* \* \* so that when the water gets low in the boiler the intense heat will allow this metal to become softened and run out \* \* \* and water escapes and drowns out the fire."

It was conceded by the defendant that no such plug was used on this engine or on any other engine used on the Baltimore and Ohio system.

(4) The claims of negligence set forth in the respondent's amended petition (supplemental transcript of record) were substantially as follows:

"First. In permitting a dangerous condition to exist in said engine, in that the crown sheet of the boiler was defective by reason of being overheated prior to the explosion.

Second. In equipping said engine with a defective water glass indicator, in that it did not indicate the real height of the water in the boiler.

Third. In failing to furnish Groeger with a reasonably safe place in which to work.

Fourth. In failing to make adequate and sufficient inspection of the engine and its equipment.

Fifth. In failing to equip said boiler with a fusible plug.

Sixth. In permitting the use of unfit and improper water in the engine, in that said water contained foreign matter, causing foam and resultant incorrect indication in the gauge cock of the height of the water in the boiler."

The trial court took from the jury as being unsupported by any evidence the second assignment of negligence regarding the water glass indicator and the sixth assignment of negligence that improper water was used and consolidating the first, third, fourth and fifth assignments of negligence limited respondent's case to the jury to two claims of negligence, as follows: (R. 73)

*"(1) Did the defendant permit or allow a dangerous, unsafe and insufficient condition to be and arise in and about the crown sheet of said boiler whereby it was weakened and became defective, unsafe and leaky; whether that was due to any or whatever cause, broken crown or stay-bolts or other causes, and if so, was the boiler explosion thereby caused in whole or in part? Plaintiff asserts that, and the defendant denies it. It will be for you to say under the evidence here, gentlemen, and the law as I state it to you, what the fact is in this respect."/*

*(2) It being conceded that the defendant had failed to install and equip this locomotive engine with a fusible safety plug, it will be for you to say whether or not the standard of duty imposed by law upon the defendant, to see that any locomotive engine propelled by steam in use upon its road in interstate commerce was in a proper condition and safe to operate in the service to which it was put, that the same might be employed in the active service in moving traffic without unnecessary peril to life or limb, was violated by the failure to equip this engine with a fusible safety plug."/*

(5) The court also charged the jury—(Record 75 and 76)

*"An interstate carrier, as well as any railroad carriers, owes the duty, of course, of availing itself of the best mechanical contrivances and inventions in known practical use which are or would be effective in making safe a locomotive boiler as against explosions. It is not bound to introduce a new appliance the moment somebody suggests it or discovers it, but is entitled to a reasonable time and opportunity to test it out and make any changes.*

*"Such I conceive to be the rules under which you are here to determine whether or not the standard of duty in making this engine safe did or did not require installation of a fusible plug. I say to you it is and was the duty of the defendant to avail itself of the best mechanical contrivances and inventions in known practical use which were or are effective in making the boilers safe as against explosions*

\* \* \*

*"If you shall find, under the charge that I have given you, that a fusible safety plug was required by that standard, and that it was a mechanical means and contrivance in known practical use and effective more than was any other that had been installed by the defendant on this engine, then its absence would be a violation of the Boiler Inspection Act, and if the explosion resulted in whole or in part because of the absence of the fusible plug, and the decedent thereby met his death, plaintiff would be entitled to recover."*

(6) The trial resulted in a verdict in the sum of \$10,576 upon which the trial court entered judgment in favor of the respondent and against the petitioner in that amount (Record 8). Thereafter the petitioner filed a petition for writ of error (Record 97) and the same being issued (Record 107) the case was heard by the Cir-

cuit Court of Appeals for the Sixth Circuit and judgment entered by the trial court was affirmed.

(7) The petitioner asserts as error the judgment of the Circuit Court of Appeals affirming the action of the trial court in—

(a) Overruling the motions made by the petitioner to direct the jury to return a verdict in its favor at the close of the evidence introduced by the respondent (Record 44) and at the close of all the evidence in the case (Record 69);

(b) In leaving to the jury the question whether the failure of the defendant to equip the locomotive boiler with a fusible plug was a violation of the Federal Boiler Inspection Act, thus permitting the jury to determine the standard of the duty imposed by such statute and whether under such standard the defendant was negligent, and (which raises the same questions) in leaving to the jury the question whether the defendant permitted a dangerous, unsafe and insufficient condition to exist in and about the crown sheet of the locomotive boiler whereby it was weakened and became defective.

(c) In charging the jury that the defendant was required to avail itself of the best mechanical contrivances and inventions in known practical use which are or would be effective in making a locomotive boiler safe as against explosions.

(8) The petitioner avers that the present case is one in which it is proper for this Court to issue a writ of certiorari because the questions of law involved herein concern the construction and application of important statutes (the Boiler Inspection Act) of the United States and are substantially as follows:

(a) Whether the failure of the petitioner to equip such engine with a fusible plug was any evidence of a breach by it of the Federal Boiler Inspection Act warranting the trial court to submit the same to the jury.

(b) Whether there was any evidence in the case which would warrant the trial court in leaving to the jury the question whether the presence of certain broken stay-bolts in the engine contributed to the explosion thereof.

(c) Whether or not the Federal Boiler Inspection Act imposes on railroad companies the duty to use the best mechanical contrivances and inventions in known practical use which are or could be effective in making locomotive boilers safe against explosions.

WHEREFORE your petitioner respectfully prays that a writ of certiorari may issue out of and under the seal of this Court directed to the United States Circuit Court of Appeals for the Sixth Circuit commanding said court to certify and send to this Court on a date to be designated in said writ a full and complete certified transcript of the record of all proceedings of the said Circuit Court of Appeals in this case to the end that the said case may be reviewed and determined by this Court as provided by law and that your petitioner may have such other and further relief and remedy in the premises as to this Court may seem proper.

THE BALTIMORE AND OHIO RAILROAD COMPANY,

By S. H. TOLLES,

*Counsel.*

STATE OF OHIO,  
COUNTY OF CUYAHOGA, ss.

S. H. TOLLES, being first duly sworn, says that he is one of the attorneys for The Baltimore and Ohio Railroad Company, and makes this verification for and in its behalf and is thereunto duly authorized; that he read the foregoing petition and that the allegations therein are true as he verily believes.

S. H. TOLLES.

SWORN TO before me and subscribed in my presence this 28th day of June, 1923.

J. W. REAVIS,  
*Notary Public.*

IN THE SUPREME COURT OF THE  
UNITED STATES.

October Term, 1922.

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THE BALTIMORE AND OHIO RAILROAD COMPANY,

*Petitioner,*

vs.

FREDA GROEGER, Administratrix of the Estate of

John C. Groeger, Deceased,

*Respondent.*

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**MOTION.**

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Now comes The Baltimore and Ohio Railroad Company and moves this Honorable Court that it shall by writ of certiorari or other proper process directed to the United States Circuit Court of Appeals for the Sixth Judicial Circuit require said court to certify to this Court for review and determination a certain cause in said Court of Appeals lately pending wherein the petitioner, The Baltimore and Ohio Railroad Company was plaintiff in error, and the respondent, Freda Groeger, Administratrix of the Estate of John C. Groeger, deceased, was defendant in error and to that end now tenders herewith its petition and brief, together with a certified transcript of the record and proceedings in said Court of Appeals.

S. H. TOLLES,

*Counsel for Petitioner.*

IN THE SUPREME COURT OF THE  
UNITED STATES.

October Term, 1922.

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THE BALTIMORE AND OHIO RAILROAD COMPANY,  
*Petitioner,*

vs.

FREDA GROEGER, Administratrix of the Estate of  
John C. Groeger, Deceased,  
*Respondent.*

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**NOTICE.**

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*To E. C. Chapman,*

*Counsel for the above named respondent:*

Please take notice that on the 1st day of October, 1923, upon the opening of the court or as soon thereafter as counsel can be heard at the court room of the Supreme Court of the United States in the City of Washington, D. C., we shall submit to the Court a petition for a writ of certiorari directed to the United States Circuit Court of Appeals for the Sixth Judicial Circuit, a copy of which said petition for writ of certiorari, motion and brief in support thereof are herewith delivered to you.

S. H. TOLLES,

*Counsel for Petitioner.*

The foregoing notice is hereby accepted by delivery of a copy thereof and of the petition for writ of certiorari, motion and brief in support of the petition, receipt whereof is acknowledged on the 28th day of June, 1923.

E. C. CHAPMAN,

*Attorney for Respondent.*

IN THE SUPREME COURT OF THE  
UNITED STATES.

October Term, 1922.

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THE BALTIMORE AND OHIO RAILROAD COMPANY,  
*Petitioner,*

vs.

FREDA GROEGER, Administratrix of the Estate of  
John C. Groeger, Deceased,  
*Respondent.*

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BRIEF ON BEHALF OF PETITIONER.

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For convenience the petitioner will be herein referred to as the defendant and the respondent as the plaintiff.

The errors of the trial court complained of here are briefly stated as follows:

- (1) *In leaving to the jury the question of the interpretation of the Federal Boiler Inspection Act;*
- (2) *In leaving to the jury the question of whether or not the crown sheet of the boiler was in a dangerous or defective condition; and*
- (3) *In charging the jury with regard to the asserted obligation of defendant to avail itself of the best mechanical contrivances and inventions in known practical use which are or might be effective in making the locomotive safe as against explosion.*

I. The Court's instructions to the jury on the matter of a fusible plug raises a question of the interpreta-

tion of the Federal Boiler Inspection Act, never decided by this Court and upon which an established authority should be had, namely, whether the mere absence of a safety device from a locomotive which is not specifically required by the Federal Boiler Inspection Act and not required by any rule of the Interstate Commerce Commission adopted pursuant thereto is or can be evidence of a violation of the Federal Boiler Inspection Act, or, stated in other words, was it intended that the Boiler Inspection Act should be construed by each jury before whom cases involving the act are tried?

The trial court left to the jury the question whether the absence of a fusible plug (also referred to as a safety plug) from the boiler of the locomotive which exploded was a violation of the Federal Boiler Inspection Act, using the following language:

“(2) It being conceded that the defendant had failed to install and equip this locomotive engine with a fusible safety plug, *it will be for you to say whether or not the standard of duty imposed by law upon the defendant, to see that any locomotive engine propelled by steam in use on its road in interstate commerce was in a proper condition and safe to operate in the service to which it was put, that the same might be employed in the active service in moving traffic without unnecessary peril to life or limb, was violated by the failure to equip this engine with a fusible safety plug.*”

The absence of a fusible plug is not a violation of the Federal Safety Appliance Act and the defendant submits that the Court erred in permitting the jury to find that it was a violation of the Boiler Inspection Act.

A fusible plug is described in detail by various witnesses. For example, McGann says (Record 20, 21):

"I have seen a fusible plug in locomotives. Its purpose is to warn the engineer in case of his negligence in allowing the water to become low in the boiler; it tells him he has lost his water. If the engineer in charge of the boiler on line of road finds water getting low, getting below a safe point, he draws the fire. A fusible plug is a brass plug with a square on the bottom of it and drilled out, either five or six small holes, or one large hole, and filled with babbitt metal or pewter, or some soft substance. The crown sheet is tapped out at the forward part, the highest part of the crown sheet, and this plug screwed in, extending above the sheet about one-half or three-quarters of an inch, so that when the water gets low in the boiler, the intense heat will allow this metal to become softened and run out in the lower part of the fire-box, and some water escapes and drowns out his fire, and makes an awful noise in the fire-box, and then he knows his water is low and he takes the precaution to draw the fire to save further damage. It acts as a supplemental safety valve, but they are considered unsafe, due to the fact that this accumulation of scale gets on this metal plug and while the water is still over this plug, or is on top of the soft metal, it allows it to come out, run out in the fire-box, and oftentimes causes serious injury and serious burns. I never knew, in my experience, the blowing out of a fusible plug to blow up the boiler. It is not as serious when the fusible plug melts out and allows the escape of the steam, as when the boiler blows up. The fusible plug is placed from half to three-quarters of an inch above the top of the crown sheet. When the water gets below the highest part of the fusible plug and before it reaches the crown sheet, it exposes the top of the fusible plug with the soft metal in it, and the soft and fusible metal will melt out before the bolts of the crown sheet."

and

"Fusible plugs are not in use on the Baltimore & Ohio Railroad System. When I was serving my apprenticeship, in 1902, they had them on the Cincinnati & Southern Railroad. I am not familiar with conditions obtaining on the New York Central or the Pennsylvania in regard to fusible plugs. I am not familiar whether they are in general use on standard railroads only from what I hear from other master mechanics, that they are not used on other roads." I don't know personally; I never worked for very many railroads. I have made inquiry and investigation in the railroad work to find out their place in the equipment and operation of engines, and the result is I find they have not gone into general use.

The objection to fusible plugs is they accumulate scale on top of the plug and this allows the metal to come out and causes the engine to fail and it is necessary to give up service on line or road. It oftentimes results in injuries to the crews; maybe the fireman is down putting in a fire, and if he should be firing there just at the time the metal comes out of the plug, that pressure in the boiler will blow the fire and hot cinders out of the fire-door, and it has proven very detrimental. The water and steam, when it comes out through the plug, comes down into the fire-box at a pressure of 175 to 200 pounds per square inch, throwing the fire and hot coals out of the fire-door. It has been determined to be unsafe, at least on the Baltimore & Ohio, I would say back as far as 1902 or 1903. Prior to that time, I think they were used; that was before my time, before 1906."

Boyden (Record 23) testifies:

"In railroad talk, a fusible plug is known as a soft plug. It is put into the highest point of the crown sheet, that is, the top of the inside of the

fire-box. There is a soft metal applied to this brass plug so that if the water gets low this metal will melt. It is used as an alarm or a safety device to the engineer to know that his water is low in his boiler. When the fusible plug operates, it relieves the pressure between the fire-box sheet and the outside wrapper sheet, so that a boiler cannot blow up.

I saw those fusible plugs in operation, directly, seven years that I was master mechanic. I used them on 178 engines on the Erie Railroad, during the period from 1912 to 1919. During that time I never had a boiler blow up, due to the safety plug. We have had plugs give out on the railroad due to poor workmanship in the applying of the soft metal in the plugs. I have never recalled of an engineer or fireman being injured due to this. I have heard there was a case, but I have never seen it."

Karnell (Record 40) testifies:

"The fusible plug is not in use on the New York Central System because it is not practical. Due to the water surging back and forth over locomotive crown sheets, we find that the tin in the fusible plug will fuse and melt, therefore permitting the water to get into the fire-box and putting out the fire. The movement of the locomotive in ordinary operation with plenty of water causes a movement of the water over the crown sheet back and forth, so that on a grade, or for other reasons, a fusible plug is impractical because it is bared; that is to say, the water leaves it at times due to the ordinary operation of the engine. When a plug blows out it blows out through the fire-box, permitting the water and steam in the fire-chamber. If the fireman at that time happens to be putting fire into the fire door, he does not necessarily get the fire and steam; but it would tend to put the fire out. I wouldn't say as to injuries happening to the fireman."

and on page 42 says:

"As a rule, in the general railroading world, all the railroad systems, they are not used. They have not been accepted and used by master mechanics and locomotive engineers as standard equipment in locomotive service."

Hedeman (Record 47 and 48) testifies:

"Fusible plugs are not used on the Baltimore & Ohio Railroad Company's engines. We have approximately 2700 engines. The system extends to St. Louis, Chicago, Philadelphia, Baltimore, with numerous branch lines.

I have made inquiries on the question of the use of soft plugs on locomotives other than the Baltimore & Ohio.

Fusible plugs are regarded as an encouragement to the engineer to not keep careful watch on his water, not keep as careful watch on the water as he would if he didn't have a fusible plug. In other words, he would rely to a certain extent on that fusible plug blowing out when the water got low, and if he wouldn't have the fusible plug he would be very careful with his water and watch his gauge cocks and water glass. When the fusible plug blows out the water and steam come out at the front end of the crown sheet and it blows it down on the fire."

#### CROSS EXAMINATION by Mr. Chapman.

"The B. & O. is the only railroad I am working for, I have not seen a fusible plug in use on the boiler of a locomotive engine. I know the purpose of it. Its purpose is when the plug would be exposed and not covered with water the soft metal would melt and come out and allow some water to escape. The plug won't prevent the water from getting down to the top of this crown sheet; it would give warning.

With a fusible plug in this boiler at the time of the explosion, all pressure within that boiler would not have been released by the action of that fusible plug before the water could get low and leave the peacock blue mark on the top of the crown sheet. When the fusible plug metal melted it would blow steam and water down and give warning. Theoretically, it would release the pressure in that boiler, but it would be negligible through that small hole. The force of the steam going through the holes in that fusible plug would be as nothing compared with the blowing up of that boiler. When the fusible plug blows out it gives warning that the water is low. It is self-evident that the danger of a fusible plug blowing out is nothing compared to the danger of the boiler blowing up."

Ayers (Record 51) testifies:

"The fusible plug is not in use upon the locomotive boilers of the Nickel Plate Railroad. During the course of my connection I have made a somewhat casual investigation, not particularly searching, into the extent of the use of fusible plugs on locomotive boilers. Without any definite figures to support my answer, it is my opinion that the use of the fusible plug in railroad work is not very general.

The American Railway Master Mechanics Association is now a part of the American Railway Association as a mechanical section. Prior to that time it was an association of railway motive power officials, that is, the master mechanics or similar officials of the various railroads had an association, in which they met and discussed their problems, made reports and recommendations, and, in addition, adopted standard practices and designs. Those standard practices and designs were not compulsory but they represented the consensus of opinion as to what was the best practice. This American

Railway Master Mechanics Association comprised representatives of nearly all the railroads in the country.

According to the proceedings of the American Railway Master Mechanics Association, they passed a resolution in 1899. Defendant's Exhibit 5 is a copy of the resolution as it appears in the 1917 and '18 proceedings of the American Railway Master Mechanics Association. It was adopted in 1899, and those things are carried forward from year to year in the proceedings. That was copied correctly directly from a printed copy of the proceedings, and reads as follows:

‘Resolved that it is the sense of the American Railway Master Mechanics Association that the use of fusible plugs in the crown sheets of locomotive fire-boxes is not conducive to the prevention of the overheating of the crown sheet.’

Mr. Kinder: In view of the fact that the witness has read the resolution we will not offer it. That is all a part of the record.”

It was claimed by the plaintiff that the absence of the fusible plug thus described constituted a violation of the Boiler Inspection Act, the pertinent provision of which is as follows:

“Sec. 2. From and after the first day of July, nineteen hundred and eleven, it shall be unlawful for any common carrier, its officers or agents, subject to this act to use any locomotive engine propelled by steam power in moving interstate or foreign traffic, *unless the boiler of said locomotive and appurtenances thereof are in proper condition and safe to operate in the service to which the same is put, that the same may be employed in the active service of such carrier in moving traffic without unnecessary peril to life or limb*, and all boilers shall be inspected from time to time in accordance with

the provisions of this act, and be able to withstand such test or tests as may be prescribed in the rules and regulations hereinafter provided for."

While this duty thus defined is, we submit, clear, to-wit: the boiler and appurtenances must be in proper condition and safe to operate so that it could be used without unnecessary peril to life or limb, we suggest that such duty is not unlimited nor does it make the carrier an absolute insurer against any contingency which might result in injury or loss of life.

The phrase "proper condition and safe to operate" should be given the usual and ordinary meaning attached to such words having due regard for the connection in which they are employed. In other words, does this phrase impose on the carrier the duty of equipping an engine so as to protect an engineer against the consequences of his own negligence? It must be remembered that upon this record this engine was turned over to Groeger in "proper condition and safe to operate" but for the fact that he permitted a condition of low water.

An examination of the other sections of the Boiler Inspection Act supports this view of the law. For example the closing phrase of Section 2 provides:

"And all boilers shall be inspected from time to time in accordance with the provisions of this act, and be able to withstand such test or tests as may be prescribed in the rules and regulations hereinafter provided for."

An examination of Sections 3, 4, 5 shows that there is thereby created an organization of inspectors including a chief inspector. With this official the carriers are directed to file their rules and instructions for the inspection of locomotive boilers (Section 5). Thereafter

the Interstate Commerce Commission upon hearing must approve such rules and instructions. In fact, the provisions of Sections 5 and 6 indicate an intent on the part of Congress to have not only the matter of boiler inspection but boiler construction determined and passed on by the Interstate Commerce Commission. In this connection the following significant language appears in Section 6:

“His (referring to the inspector) first duty shall be to see that the carrier make inspections in accordance with the rules and regulations established or approved by the Interstate Commerce Commission and *that carriers repair the defects which such inspections disclose before the boiler or boilers or appurtenances pertaining thereto are again put in service.*” (Italics ours.)

Again:

“When any district inspector shall in the performance of his duty, find any locomotive boiler or apparatus pertaining thereto *not conforming to the requirements of the law or the rules and regulations established and approved as hereinbefore stated,* he shall notify the carrier in writing that the locomotive is not in serviceable condition and thereafter such boiler shall not be used until in serviceable condition.”

This and other provisions of the various sections of the Boiler Inspection Act clearly in our opinion disclose an intent by Congress that the Interstate Commerce Commission should be clothed with a greater authority and duty than merely an inspection of boilers and providing rules and regulations in that regard. The right to inspect and regulate includes, we submit, the authority to say and determine what constitutes a defect or unsafe condition, otherwise the Inspection Act is without

meaning. The act would be a futile thing if upon inspection the Commission could not deal with a defect or unsafe condition developed by such inspection. But as pointed out in the provisions just quoted, the Commission is expressly given the authority to hold out of service any locomotive boiler or apparatus—

“not conforming to the requirements of the law or the rules and regulations, etc.”

We, therefore, submit that the question of whether a boiler not equipped with a fusible plug was a violation of Section 2 of the Act was a question for determination by the Interstate Commerce Commission under the power given and duties imposed upon it by the sections above referred to.

In this connection, this record shows that the Commission did not require that locomotive boilers be equipped with fusible plugs. The court so charged the jury. (Record 74-75)

It is to be kept in mind, moreover, that the non-use of a fusible plug by the Company does not involve dangerous or defective construction so far as the boiler or locomotive itself is concerned; nor does it involve a question of inadequate or defective design, or the use of improper appliances in the make-up or construction of the particular boiler. This case involves solely the non-use or absence in a boiler of an appliance otherwise unnecessary, the use of which is to protect the engineer from the result of his own negligence and disregard of duty owed not only to his employer but also to his fellow employes. In this connection the Court will again recall that the Company had turned this engine over to Groeger in first class condition so far as the operating appliances, gauge cocks, water glasses, etc., were con-

cerned, and it therefore follows that Groeger had at hand all the necessary appliances by means of which he could determine and control the height of the water in this boiler and thus prevent the disaster which occurred.

This view of the meaning and intent of the Boiler Inspection Act was not adopted by the learned trial judge under whose charge the jury was constituted a tribunal not only as to the facts but also as to the law, i. e., as to the nature and extent of the obligation imposed by Section 2 of the Boiler Inspection Act.

The Court's charge and exceptions taken thereto clearly raise the legal question existing as to the proper construction and effect of the Boiler Inspection Act as applied to this case.

In effect the Court left to the jury to determine—(1) what standard of duty was imposed by the Act, i. e., what was the meaning of the phrase in the Act "proper condition and safe to operate" and "without unnecessary danger to life and limb"; and (2) to determine, having found that standard, whether or not the standard required a fusible plug.

The error into which the Court fell resulted, we submit, from (1) its construction of the terms of the Boiler Inspection Act and (2) its assumption that under the act so construed the failure of the Interstate Commerce Commission to require a fusible plug left the question open to each jury in a particular case to say whether or not the use or non-use of this kind of an appliance was or was not negligence; and (3) the Court's misapprehension of the scope of the decision in *Railway Co. vs. Donaldson*, 246 U. S. 121.

An examination of this case will show that while the non-use of a fusible plug was assigned as negligence the

question of the scope and intent of the Boiler Inspection Act was not considered nor did the record present as this record presents, any question in that regard. While it is true that the non-use of a fusible plug is mentioned in the opinion the case turned on the question of defective and unsafe construction.

The locomotive boiler involved appears to have been equipped with button headed crown sheet bolts proper in a coal burning engine but improper and unsafe when oil was used for fuel. No change in this construction was made when a change in fuel from coal to oil was made.

Furthermore, so far as the question of a fusible plug was concerned the evidence of the plaintiff was to the effect that the water was not low, i. e., that the explosion was not due to low water. This was disputed and the jury having found for the plaintiff it is to be assumed that the failure of that particular boiler was not due to low water. Hence the question of use or non-use of a fusible plug was not only not involved as a matter of law but also not in the case as a matter of fact.

The case clearly distinguishes itself from the case at bar. The question which the jury in the *Donaldson* case had to determine was whether or not a particular form of construction was in fact unsafe. The Supreme Court held that this was an open question for the jury and that the failure of a boiler inspector to disapprove such construction was not conclusive on that point. This ruling is clearly not inconsistent with our views hereinbefore expressed as to the scope of the Boiler Inspection Act. We are not claiming that the failure of the Inspector, for example, to discover on inspection a defective condition of a particular engine would constitute a defense to the carrier when a boiler failure resulted from a defect which the inspector overlooked. Nor do

we claim that the failure by an inspector to disapprove the non-use of a fusible plug would be a defense in this case, and the Court will remember that in the *Donaldson* case the evidence failed to show an approval of the construction there employed. (p. 127)

Our contention goes deeper. It is, in substance, that when a locomotive boiler is in all other respects —

"in proper condition and safe to operate \* \* \*"  
and "may be employed in the active service of such carrier in moving traffic without unnecessary peril to life or limb"

*the non-use by the carrier of an appliance which might protect the engineer of the locomotive from the consequences of his negligent operation of an otherwise safe engine is not and may not be held to be a breach of duty under the Boiler Inspection Act, which does not require a fusible plug either expressly nor through regulations in force pursuant to the provisions of such act.*

The question here involved is purely one of law—the non-use of a fusible plug in this boiler was admitted by the Company, which in addition to the fact that the Commission did not require fusible plugs showed that it was not used by various standard railroad systems, such as the New York Central, The Chicago, Burlington & Quincy, The Illinois Central, Baltimore and Ohio, The New York, Chicago and St. Louis (Nickel Plate). Likewise, it appears that The American Railway Master Mechanics Association, an association of motive power officials from nearly all the railroads of the country, have by resolution gone on record against the use of a fusible plug. (Record 51)

If the mere absence of a fusible plug from a locomotive boiler safe in all other respects is to be left to the jury for it to say that such constitutes a violation

of the Federal statute requiring locomotive boilers to be in proper condition and safe to operate, the jury will also be given the duty to ascertain whether the presence of such a safety device is a violation of the statute where injury results therefrom. Where an injury results from a fusible plug melting and shooting steam into the fire box of the locomotive, as is likely to occur (testimony of McGann, Record 20) the trial court would have to leave to the jury the question of whether the presence of such a plug was a violation of the Boiler Inspection Act. *A jury could very well hold that the installation of a plug was a violation of the statute since they apparently are not in general use and have been condemned by The American Railway Master Mechanics Association.* Thus, whether a Railroad Company installs or fails to install a fusible plug it is at the mercy of a jury which is permitted to find that either its presence or absence is a violation of the Federal statute which imposes an absolute liability on the company in case injury results from a breach thereof. Obviously it was the design of Congress that the statute should be given a consistent application by rules promulgated by the Interstate Commerce Commission and not that juries should place varying and inconsistent interpretations thereupon, making carriers liable regardless of whether they installed or failed to install some particular safety device not specifically required by the statute.

II. The trial court left to the jury for its determination the question whether the crown sheet of the boiler which exploded was dangerous and defective, using the following language:

“(1) Did the defendant permit or allow a dangerous, unsafe and insufficient condition to be and arise in and about the crown sheet of said boiler

whereby it was weakened and became defective, unsafe and leaky; whether that was due to any or whatever cause, broken crown or stay-bolts or other causes, and if so, was the boiler explosion thereby caused in whole or in part. Plaintiff asserts that, and the defendant denies it. It will be for you to say under the evidence here, gentlemen, and the law as I state it to you, what the fact is in this respect.

\* \* \* The question, then, will be whether or not the defendant used this locomotive engine when it was not in proper condition and safe to operate in the service to which it was put so that the same might be employed in the active service of such carrier without unnecessary peril to life or limb. The standard of duty is that they shall put it in proper condition and keep it in proper condition and safe to operate; it is required that it should be put in a condition and kept in a condition so that it might be employed in the service without unnecessary peril to life or limb. This is an absolute duty. If the engine, as to the crown sheet was, in fact, permitted to be or to become in a defective, dangerous, or unsafe condition, in such a condition that it was not safe to operate in service, or in such a condition that it could not be employed in the active service of the carrier in moving traffic without unnecessary peril to life or limb, that would be a violation of its duties; and if, as a result of such violation of its duties, the explosion occurred, or such failure was a contributing cause, or a direct and proximate cause, along with others, to the explosion and the resultant injury, the defendant would be liable."

The defendant asserts that there was no evidence warranting the court in submitting to the jury any question as to the unsafe and defective condition of the boiler or the crown sheet therein, and that such action was erroneous and prejudicial.

The record in this case contains practically a complete history of this engine so far as its condition and matters of inspection are concerned, from June, 1920, until September 3, 1920, at which time the engine was turned over to Groeger for the trip on which the explosion occurred. For example, on June 5, 1920, engine No. 2541 was given a general overhauling and repair, as shown by defendant's Exhibit No. 12 (Record 94 to 96). The character of this overhauling is evident from the subject-matter of defendant's Exhibit 12 and is described by witness McGann (Record 67 and 68). In addition to this semi-annual overhauling and report thereof, the Interstate Commerce Commission regulations require a monthly locomotive inspection and repair report. This was done on August 11, 1920, about three weeks prior to the accident, as shown by defendant's Exhibit 6 (Record 89). The character of this inspection and repair is shown by that exhibit and is also described by witness Cecil (Record 52) and witness Dixon (Record 57). This latter witness also describes the process of washing a boiler (Record 58 and 59). In railroad language, the process of inspecting and repairing an engine called for by the monthly inspection report (Defendant's Exhibit 6, Rec. 89) is known as "forming" an engine (Record 57), and is also further described by witness Hooper (Record 57).

It also appears that the boiler of this engine was washed on August 5, August 21 and August 30 (Record 57 and 58). In connection with these reports, the various witnesses who took part in the inspection and repairs made and thus reported, testified as to what was done (Testimony of Cecil, Record 52; Brewer, Record 53; Kennedy, Record 55; Hooper, Record 56; Dixon, Record 57). In addition to these employes, two engi-

neers of the Company, who operated this engine immediately prior to Groeger's trip, testified regarding the condition of the engine. For example, Howard Lisle (Record 60) testified that he as an engineer operated this engine on the 29th, 30th and 31st, and that

"while I was operating the engine on the 29th, 30th and 31st of August, I did not have a bit of trouble with the injectors. The gauge cock was O. K. and the water glass. You can check the water glass against the gauge cocks and the gauge cocks against the water glass. They correctly show the height of the water."

T. E. Peele (Record 60) says:

"I had it (engine No. 2541) out of Holloway on the 31st of August \* \* \*. I was hauling a freight train \* \* \*. When I had that train on the 31st of August the condition of her gauge cocks was good and her injectors were good. I did not have any trouble or notice any defect in the water glass. Her steaming qualities, as far as being an efficient engine is concerned, were good."

J. W. Hamilton, engineer (Record 54) had the engine on the day preceding the explosion, and testifies that he made out a work report, (Defendant's Exhibit 8, Record 92) at the conclusion of his run, calling attention to what trouble had developed during the run which ended at 1:30 p. m. on September 2. After describing the engine, Hamilton testifies:

"When I operated that locomotive she was a good locomotive, one of the best we had."

With respect to water conditions, W. J. Dixon, a witness on behalf of plaintiff, testified that the water conditions at Holloway, Fairport, Bridgeport and Benwood were good (Record 13).

The foregoing testimony, which is not disputed, constitutes, with the exceptions hereinafter referred to, the proof respecting the condition of this engine and these appliances when it was turned over to Groeger prior to his trip.

The exception above referred to is with regard to certain stay-bolts which were found after the explosion to have been broken, and which, according to the evidence, were broken prior to the accident (Record 19). The Court will find a rather complete description of the engine, including the boiler, in the testimony of Walter C. Hedeman (Record 42, *et seq.*), in which the witness describes in general the construction of the boiler. The crown sheet, wrapper sheet and the flue sheets are held and fastened together (and also kept apart) by stay-bolts, there being 1464 stay-bolts in each engine. The testimony of Joseph A. Boyden (Record 29 and 30) is explanatory of the detail of locomotive boiler construction.

With respect to these stay-bolts, it appears from the record that under the regulations of the Interstate Commerce Commission no engine may be used where it has more than five broken bolts, or where it has two broken bolts which are adjacent to each other (Record 30, 49 and 77). In this case there were six intermediate stays, two of which were adjacent, and one stay-bolt at the forward part of the crown sheet, broken. The location of these broken bolts is described on pages 18 and 19 of the record, and are located by witness Hedeman (Record 46).

There is in this record, however, not a scintilla of evidence to the effect that the broken bolts (which appeared from their condition to have been broken prior to the accident) had any connection whatever with this

explosion. Expert witnesses for plaintiff and defendant agree in this conclusion. For example, Charles McGann testifying on behalf of both plaintiff and defendant says (Record 22):

*"These stay-bolts had no contributing cause toward the failure whatever."*

and in the Record, page 66, further says:

*"In my opinion those broken bolts contributed none whatever to the tear of the crown sheet and the consequent explosion of the boiler."*

The opinion of John A. Boyden is indicated by the following question and answer (Record 30):

*"Q. Now, supposing after a tear or boiler explosion, the tear in the crown sheet was located by those who inspected the engine after the explosion, and suppose that that tear was not adjacent, nor did it come inward near the bolt or two bolts that were broken, but that the tear pulled out good bolts, pulled off the good bolts, you would have some difficulty, would you not, in coming to the conclusion that these other broken bolts were a contributing factor to that boiler failure? A. I would."*

Charles A. Karnell, an expert from the New York Central Railroad Company, testified (Record 41):

*"The three stay-bolts as they are marked as broken there on each side, were not a contributing factor to the explosion, due to the fact that the solid stays had to let go first before they could come to this."*

Walter C. Hedeman (Record 47) testifies as follows:

*"Q. Now, Mr. Hedeman, having that in mind and having in mind the location of those seven bolts, in your opinion as a boiler expert, could those*

*seven bolts be considered as even a contributing cause to that boiler failure?*

A. *Absolutely not."*

In other words, as one witness put it,

*"From the appearance of the crown sheet, the boiler would have exploded if these broken stay-bolts discovered thereafter, had been intact prior to the explosion."* (Record 22).

In addition to the testimony of these men, (and it will be recalled that McGann had the opportunity of examining the bolts and engine shortly after the explosion) the circumstantial evidence with regard to the point where the boiler failure started absolutely excludes any theory or idea that these broken bolts contributed in any way to this explosion. For example, McGann, making an examination within three hours after the explosion occurred, found on the crown sheet the peacock blue coloring, which in itself is conclusive evidence of the over-heating of the crown sheet in the area thus colored (Record 65).

Joseph A. Boyden, witness for the plaintiff, also testifies that a blue area on the crown sheet indicates that the crown sheet has become exposed due to low water. The testimony of Karnell (Record 41), and Hedeman (Record 46), is to the same effect. The testimony of Hedeman (Record 46) and McGann (Record 65 *et seq.*) shows that the cause of the explosion was the low water and that the place of the tear and the condition of the bolts from which the crown sheet was separated by the force of the explosion and the relation of such bolts to the six broken stay-bolts conclusively establish that these broken bolts could not possibly have been involved in this boiler explosion.

We therefore submit that upon this record there is no more basis for the claim that these stay-bolts contributed to this boiler failure than, we submit, that a broken bell clapper on the engine (if such were the fact) could be proximately involved in an explosion of the locomotive boiler.

The error of the Court below in this regard is evidenced by its charge to the jury hereinbefore quoted. We desire to point out that the error of the Court in submitting to the jury a question in support of which there is no evidence in the record was emphasized by the fact that not only did the Court submit this question of broken stay-bolts to the jury, but in connection with that submitted to the jury the question of whether or not the crown sheet of said boiler was "weak, defective, unsafe and leaky \* \* \* due to having previously been overheated." There is absolutely no evidence in the record that this crown sheet had been previously overheated.

We desire to suggest in this connection that the only testimony regarding any defective condition related solely to these stay-bolts and submit that aside from our position that there is no evidence to support the claim that the broken stay-bolts had any causal connection with the explosion, the necessary effect of the Court's instructions in regard to the condition of the engine was to connect with the matter of broken stay-bolts the claim of the plaintiff in regard to want of inspection and previous overheating of the crown sheet to support which no evidence was attempted to be introduced by the plaintiff.

III. The third assignment of error by the defendant raises a question of the interpretation of the Boiler

Inspection Act, namely, whether under the Boiler Inspection Act carriers are required to avail themselves of the best mechanical contrivances and inventions in known practical use which are or would be effective in making a locomotive boiler safe as against explosions.

The trial court charged that such was the defendant's duty, using the following language:

"An interstate carrier, as well as any railroad carriers, owes the duty, of course, of availing itself of the best mechanical contrivances and inventions in known practical use which are or would be effective in making safe a locomotive boiler as against explosions. It is not bound to introduce a new appliance the moment somebody suggests it or discovers it, but is entitled to a reasonable time and opportunity to test it out and make any changes.

"Such I conceive to be the rules under which you are here to determine whether or not the standard of duty in making this engine safe did or did not require installation of a fusible plug. I say to you it is and was the duty of the defendant to avail itself of the best mechanical contrivances and inventions in known practical use which were or are effective in making the boilers safe as against explosions. \* \* \* If you shall find, under the charge that I have given you, that a fusible safety plug was required by that standard, and that it was a mechanical means and contrivance in known practical use and effective more than was any other that had been installed by the defendant on this engine, then its absence would be a violation of the Boiler Inspection Act, and if the explosion resulted in whole or in part because of the absence of the fusible plug, and the decedent thereby met his death, plaintiff would be entitled to recover."

The defendant asserts that it is not bound to install the best mechanical devices to insure the safety of the

boilers of its locomotives and that the Court erroneously made the standard of its duty dependent upon the practice of other carriers which is not the standard imposed by the statute.

The Boiler Inspection Act in Section 2 prohibits the use of locomotive engines unless the boilers thereof "are in proper condition and safe to operate in the service to which the same are put." The statute thus defines and establishes the standard of the defendant's duty. The common law rule in force prior to the adoption of such statute required a common carrier to use ordinary care in providing and maintaining equipment reasonably safe and suitable for the use of its employes. Congress by the Boiler Inspection Act obviously designed only to make such duty absolute rather than qualified as being based on negligence. The evident legislative purpose was to impose liability on carriers if injury resulted from their failure to furnish locomotive boilers which were reasonably safe regardless of whether they were negligent in doing so or not. The duty imposed by the common law upon railroad companies is now absolute instead of being based on negligence but the character of the appliances they are required to furnish remains the same, that is, reasonably safe and suitable for the use of their employes. The failure to furnish a locomotive with a reasonably safe boiler is negligence *per se* but the statute does not require that the boiler furnished be of any different character than was required at common law.

That Congress by the adoption of the Safety Appliance Act and the Boiler Inspection Act merely changed the duty from a qualified one based upon negligence to an absolute one is evidenced by several decisions of this Court.

In *San Antonio Ry. vs. Wagner*, 241 U. S. 476, 484, this Court stated with reference to the Safety Appliance Act:

"If this Act is violated, the question of negligence in the general sense of want of care is immaterial. 241 U. S. 43, and cases there cited. But the two statutes are *in pari materia*, and where the Employers' Liability Act refers to 'any defect or insufficiency, due to its negligence, in its cars, engines, appliances,' etc., it clearly is the legislative intent to treat a violation of the Safety Appliance Act as 'negligence'—what is sometimes called negligence *per se.*'"

The court in *Louisville & Nashville R. R. vs. Layton*, 243 U. S. 620, stated with reference to the same statute:

"By this legislation the qualified duty of the common law is expanded into an absolute duty with respect to car couplers and if the defendant railroad companies used cars which did not comply with the standard thus prescribed they violated the plain prohibition of the law, and there arose from that violation a liability to make compensation to any employee who was injured because of it."

In *St. Louis, I. M. & S. Ry. Co. vs. Taylor*, 210 U. S. 281, the court held:

"In the case before us the liability of the defendant does not grow out of the common law duty of master to servant. The Congress, *not satisfied with the common law duty and its resulting liability*, has prescribed and defined the *duty by statute*. We have nothing to do but to ascertain and declare the meaning of a few simple words in which the duty is described. It is enacted that 'no cars, either loaded or unloaded, shall be used in interstate traffic which do not comply with the standard.' There

is no escape from the meaning of these words. Explanation cannot clarify them, and ought not to be employed to confuse them or lessen their significance. The obvious purpose of the legislature was to supplant the qualified duty of the common law with an absolute duty deemed by it more just."

The above language was quoted with approval in *C. P. & Q. Ry. vs. U. S.*, 220 U. S. 556.

It thus appears that the only change made by the Boiler Inspection Act is in the abrogation of the requirement of negligence as a condition of the defendant's liability. The duty of the carrier is now absolute but the character of the equipment it is required to furnish is the same and if under the common law and the Federal Employers' Liability Act there was no requirement that a carrier avail itself of the best mechanical contrivances and inventions in known practical use, there is no such requirement now and the charge of the court was erroneous and prejudicial.

That there was no such requirement existing under the common law or the Federal Employers' Liability Act is clearly disclosed by the language of this Court in *Chicago & Northwestern R. R. vs. Bower*, 241 U. S. 470, 473. There action was brought under the Federal Employers' Liability Act, it being asserted that the defendant supplied the plaintiff with a locomotive containing certain defective appliances. The court stated:

"The rule of law is: That the employer is under a duty to exercise ordinary care to supply machinery and appliances reasonably safe and suitable for the use of the employee, but is not required to furnish the latest, best, and safest appliances, or to discard standard appliances upon the discovery of later improvements, provided those in use are reasonably safe and suitable. Washington, Etc.

*R. R. vs. McDade*, 135 U. S. 554, 570; *Patton vs. Tex. & Pac. Ry.*, 179 U. S. 658, 664.” (Italics ours)

In *Washington R. R. vs. McDade*, 135 U. S. 554, 570, it was held:

“The general principles of law by which the liability of an employer for injuries to an employe, growing out of defective machinery, is tested are well settled by those decisions. Neither individuals nor corporations are bound, as employers, to insure the absolute safety of the machinery or mechanical appliances which they provide for the use of their employes. *Nor are they bound to supply the best and safest or newest of those appliances for the purpose of securing the safety of those who are thus employed.* They are however, bound to use all reasonable care and prudence for the safety of those in their service, by providing them with machinery reasonably safe and suitable for the use of the latter.” (Italics ours).

To require a carrier to avail itself of the best mechanical devices in known practical use is to measure its duty by the practice of other carriers and not by the standard established by law. The equipment of other carriers may go beyond a compliance with the duty imposed upon the defendant or it may fall short of compliance therewith. The law requires locomotive boilers reasonably safe and in proper condition. That is the standard and although the practice of other carriers may be evidence of a compliance or a failure of compliance therewith the standard is not defined or established by such practice. If the equipment used by a carrier is reasonably safe and proper it has discharged its duty and the fact that other carriers employ other equipment which to some juries might seem more safe than that used by the defendant, is immaterial.

Obviously the practice of other carriers is evidence alone of the compliance or failure of compliance by the defendant with its duty but it does not define or fix the standard of such duty.

As stated in *Wigmore on Evidence*, Sections 459 to 461:

"Another objection that may occur is that the conduct of another person is not to be taken as a *standard determining legal duty*. This is undoubtedly true; but it is easy to distinguish between the conduct of another person as a standard of duty and the same conduct merely as evidence of the nature of the thing which is the subject of the duty. . . . The distinction is itself a simple one. (1) The conduct of others evidences the tendency of the thing in question; and such conduct—e.g. in using brakes on a hill, felt shoes in a powder factory, railings around a machine, or in not using them—is receivable with other evidence showing the tendency of the thing as dangerous, defective, or the reverse. But this is only evidence. The jury may find from other evidence that the thing was in fact dangerous, defective, or the reverse, and that its maintenance was or was not negligence, in spite of the above evidence. (2) Meanwhile, the substantive law tells them what the standard of conduct for negligence is; and this standard is a fixed one, independent of the actual conduct of others. To take that conduct as furnishing a sufficient legal standard of negligence would be to abandon the standard set by the substantive law, and would be improper. This conduct of others, then, (1) is receivable as some evidence of the nature of the thing in question, because it indicates what is the influence of the thing on the ordinary person in that situation; but (2) it is not to be taken as

fixing a legal standard for the conduct required by law."

In *Texas & Pac. R. R. vs. Behymer*, 189 U. S. 469, this Court held that whether the defendant railroad company operated a train in the usual and ordinary way was not the criterion of its liability for resulting injury, saying:

"What usually is done may be evidence of what ought to be done but what ought to be done is fixed by a standard of reasonable prudence. whether it usually is complied with or not."

*Wabash R. R. Co. vs. MacDaniels*, 157 U. S. 454; *Shandrew vs. Chic., Mil. & St. Paul R. R.*, 142

Fed. 320;

*Midland Valley R. R. vs. Bell*, 242 Fed. 803.

Similarly in this case what equipment the defendant ought to have furnished is fixed by the standard established by law and what equipment other carriers furnish is, if anything, evidence alone of compliance or failure of compliance with such standard and the practice of other carriers does not establish the standard of defendant's duty. By statute the defendant is required to supply locomotives "in proper condition and safe to operate." Such is apparently defined by the pre-existing common law rule as requiring merely reasonably safe equipment and appliances. Clearly under the decisions above noted defendant was not required to furnish the best and safest equipment known nor was it required to adopt and use the best equipment in known practical use. The practice of other carriers is material only as evidence and the court erred in charging the jury that the defendant was required to furnish the best equipment in known practical use to insure its boilers as against explosions.

**CONCLUSION.**

We, therefore, submit that the questions here raised by the defendant are of great importance because they concern the interpretation of statutes of the United States upon questions relative to which there is no clear or established authority and that the defendant's petition for a writ of certiorari should be granted and the judgment below reversed and a new trial had.

Respectfully submitted,

S. H. TOLLES,

*Counsel for Petitioner.*

W. T. KINDER,

J. P. WOOD,

J. W. REAVIS,

*Of Counsel.*



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## In the Supreme Court of the United States

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THE BALTIMORE AND OHIO RAILROAD COMPANY,

*Petitioner,*

vs.

FREDA GROEGER, Administratrix of the Estate of John C.  
Groeger, Deceased,

*Respondent.*

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### BRIEF ON BEHALF OF THE BALTIMORE AND OHIO RAILROAD COMPANY.

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S. H. TOLLES,

*Counsel for Petitioner.*

W. T. KINDER,

J. P. WOOD,

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*Of Counsel.*

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Groeger, Deceased,  
*Respondent.*

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## BRIEF ON BEHALF OF THE BALTIMORE AND OHIO RAILROAD COMPANY.

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### STATEMENT OF CASE.

This case is here on a writ of certiorari to the United States Court of Appeals for the Sixth Circuit granted on the petition of The Baltimore and Ohio Railroad Company seeking a review of the judgment of the Court of Appeals affirming a judgment in favor of the respondent against petitioner rendered in the United States District Court for the Northern District of Ohio where respondent instituted an action seeking the recovery of money damages for the alleged wrongful death of John C. Groeger while in the employ of the Company as a locomotive engineer.

For the purpose of convenience, the parties will be referred to as they stood in the trial court, to-wit, Freda Groeger, Administratrix of the Estate of John C. Groeger, Deceased, Plaintiff, vs. The Baltimore and Ohio Railroad Company, Defendant.

This action was brought under the Federal Liability Act of April 22, 1908, and its amendments, it being claimed by plaintiff and admitted by defendant that the parties were engaged in interstate commerce at the time of the accident. The plaintiff also relied on the Federal Boiler Inspection Act, 36 Stat. L. 913, 8 U. S. Comp. Stat. §8631, and its amendments, 38 Stat. L. 1192, 8 U. S. Comp. Stat. §8639-a, claiming a right of recovery upon an asserted breach by defendant of a duty said to be imposed by said statute. This was and is denied by defendant.

The case is as follows:

On the morning of September 3, 1920, John C. Groeger, an engineer employed by the defendant and in charge of Engine No. 2541, left Holloway, Ohio, with a freight train for Brooklyn Junction, West Virginia, crossing the Ohio River at Wheeling and proceeding by way of Moundsville, Chestnut Hill, Foster's Tower and Proctor. At or near Proctor, West Virginia, some three miles beyond Foster's Tower, the boiler of the engine exploded, resulting in the death of Groeger, the engineer, the fireman and the head brakeman who constituted the engine crew at the time of the explosion.

Within two hours after the explosion a thorough examination of the locomotive was made (Rec. 50). This disclosed among other things that the crown sheet was

"overheated in an area of forty-six or forty-eight by thirty-four inches in diameter covering the highest part of the crown sheet which was discolored and showed a very peacock blue coloring, indicating that the crown sheet had been overheated." (Rec. 50).

The extent of the tear in the crown sheet and the location thereof and of the stay-bolts from which the sheet had been pulled is further described by the witness

McGann (Rec. 50) and has been plotted to scale on defendant's Exhibit 1 (Rec. 35), a model which will be presented on oral argument. Overheating of the crown sheet with this consequent "peacock-blue" marking, indicating the height of the water on the steel at the time of the explosion (Rec. 21) denotes in the opinion of witnesses for both sides "low water" in the boiler. (See testimony of Plaintiff's expert, Boyden, Rec. 21). It was and is the claim of the defendant that Groeger was solely to blame for this "low water" and the consequent explosion.

It also appeared that the examination by McGann developed that prior to the explosion there were seven broken stay-bolts in the entire boiler but

"The bolts which we found were not near the sheet that had tore either on the right or left side." (Rec. 50).

but neither in the opinion of Master Mechanic McGann, Hedeman (Rec. 35), Karnell (Rec. 31) testifying as experts on behalf of defendant, nor of Boyden (Rec. 22) testifying for the plaintiff, were these broken bolts a contributing factor in this accident.

Finally it appears from the testimony of other engineers who had operated the engine on August 29th and 30th (Lisle, Rec. 46), on August 31st (Peal, Rec. 45) and on September 2nd (Hamilton, Rec. 41) that the engine involved, including any of its appliances here involved, was in good condition. Hamilton (Rec. 41) who operated this engine on September 2nd, the day prior to the explosion, sums up the condition of the engine as follows:

"When I operated that locomotive she was a good locomotive, one of the best we had."

The various reports required by law (Defendant's Exhibits 6, 7, 8, 9 and 12—Rec. 63 to 69) disclose the maintenance record of this engine and its condition up to the day preceding the accident.

With respect to the actual performance of the engine on the morning of the explosion the evidence is limited by reason of the fact that the fireman and head brakeman were also killed in the explosion. The conductor, Bethel, (Rec. 9 to 12) in the caboose at the time of the explosion, was the only witness who was with the train from the start of the trip until the accident. One other witness, Bursee, testifying by deposition, claimed to have been on the engine for a few minutes at Foster's Tower some three miles from the scene of the explosion. We refer to Bursee's testimony in view of the fact that the opinion of the Court below discloses that the Court of Appeals gave to this testimony a weight and emphasis to which, as the cross-examination of this witness and the testimony of other witnesses clearly discloses, it was not entitled. We will analyze this testimony later.

Conductor Bethel, in brief, testifies that the train started at Holloway, Ohio, about daybreak and proceeded through Bridgeport, Ohio, to McMechen, West Virginia. From McMechen to Moundsville, Bethel noticed the slack "running up into the train from the rear" (Rec. 10), which indicated to Bethel that the engineer had shut off, but the train kept moving and did not stop before reaching Moundsville. At Chestnut Hill, beyond Moundsville, the train went in on a siding and Bethel was advised that the "link hanger" was broken. This link hanger has no connection with the boiler or water conditions therein. It is, as one witness put it, "the reversing mechanism on the engine, and is located down around the wheels between

the drivers underneath the engine. It is a mechanism like the gear of an automobile; if that was out of order you couldn't go into reverse." (Brookover, Rec. 48).

From Chestnut Hill to Foster's Tower, a distance of six miles, Bethel rode the engine in order to sign a 31 order (an order that a conductor signs, Rec. 47) during which interval Bethel remembers that there was one injector working. He saw a gauge cock test made; this showed blue steam, indicating lack of water (Rec. 11); and the water went up and down in the water glass. Bethel got off the engine at Foster's Tower and was in the caboose when the explosion occurred at Proctor, two and a half or three miles beyond Foster's Tower. The evident import of the testimony of Bethel, called as plaintiff's witness, is that between Chestnut Hill and Foster the water was low in the boiler of Groeger's engine. He testified under examination by the Court that the gauge cock test showing blue steam was made by the fireman on the engineer's side of the engine (Rec. 12). It will also be noted that the engine took water, i. e., into the tender, at Foster's Tower (Rec. 12, 47, 48).

Bursee's testimony given by deposition (Rec. 23-29, incl.) is entitled on its face to little if any weight. We refer to it, however, to complete the detail of the facts. His asserted presence on Groeger's engine (although a member of a crew of another train) while taking water at Foster's Tower is denied by Brookover, the engineer of the other (Bursee's) train (Rec. 47) and negatived by Hill, Bursee's conductor, (Rec. 48 and 49).

Aside from the obvious improbability of a head brakeman on another train on an adjoining track busying himself about a locomotive, making a detailed inspection thereof and conversing with the engineer when he ad-

mittedly had no duty to perform thereon (Rec. 26) Bursee's cross-examination discloses such further inconsistencies as to warrant the conclusion that his evidence is without value. In fact his testimony, which supports no specific or assigned claim of negligence in the amended petition was passed without comment in the charge of the Court which, as before indicated, in effect limits plaintiff's case to the two propositions involving (1) the broken stay-bolts, and (2) the question of the fusible plug.

For example, Bursee testifies that Groeger in taking water had unhooked his engine from his train. This is untrue as by reason of the broken link hanger Groeger could not reverse his engine and, therefore, had to "spot" his engine (with train attached) at the water plug (Brookover, Rec. 48). Bursee further testifies that he was on the engine three to five minutes and that both injectors were on. (Rec. 26). This is untrue as with both injectors on and having a capacity of nine thousand gallons per hour this amount of water would so reduce the steam pressure that the engine could not move the train (Rec. 51).

The record also shows that the blower was on (Rec. 48), hence escaping steam from any cause would, with the throttle closed as it was at Foster's Tower, be drawn out through the smoke box into the atmosphere (Rec. 51). Further, at Moundsville the trouble with the link hanger developed as related by the conductor (Rec. 10); and if Bursee had any talk with Groeger (Rec. 27) the latter undoubtedly referred to that. It is significant that he does not say that Groeger said anything about water conditions.

The fact, however, which conclusively shows Bursee's testimony to be without any weight is that at no time after

the explosion (although he was a member of the work crew immediately despatched to the scene, (Rec. 24) did Bursee report his alleged examination of the engine to "anybody at all at any time." (Rec. 27). The accident occurred September 3, 1920. His deposition was taken January 4, 1922, and Bursee admittedly never mentioned his story to any one until a month prior to his deposition which disclosed a recent claim of his against the Pennsylvania Railroad Company, in respect of which he was represented by counsel for plaintiff.

Before a discussion of the legal questions involved and by reason of the fact that the complaints of the plaintiff respecting this locomotive are, as hereinafter shown, confined in the record to the boiler thereof and more immediately to the crown sheet and its supporting bolts, it may be helpful to here place before the Court such facts from the record as will assist in the visualization of the locomotive and the part or parts in question. In this regard, in addition to the photographic exhibits attached to the record at page 62 showing a locomotive fire box, including crown and wrapper sheet, brick arch, flues, etc., (Defendant's Exhibit 2), the interior of the engine cab showing the gauge cocks, water glass and injectors (Defendant's Exhibit No. 3), there will be presented at the oral argument a model of crown and wrapper sheet which will facilitate the definition and location of the various appliances and a description of their use and function.

The crown and side sheet of a locomotive is a circular sheet of three-eighths inch steel of one piece (Rec. 32, 33, 34) and is located immediately over the fire box and as shown by defendant's Exhibit 2 (Rec. 62) it is the under surface of this crown sheet that the flames strike after passing around the brick arch. At the front of the fire

box and attached to the crown sheet is the flue sheet to which are attached the flues or pipe (282 in number) which carry the gas, flame and smoke to the front end of the locomotive and out the smoke stack (Rec. 33). The space provided for the water from which is generated the steam is the space between the crown sheet and wrapper sheet and around the flues.

These various sheets so built together as to afford the space for the water are so fixed and held by stay-bolts, 1464 in number, and are variously known as crown, radial and intermediate bolts, depending on their location. The testimony of W. C. Hedeman (Rec. 32 to 35) is in part devoted to a clear description of the boiler construction of this engine.

The water carried in the tank or tender attached to the locomotive is transferred to the boiler by means of two injectors known as the left and right injector, one being located on the right side and the other on the left side of the engine cab. They appear, although not plainly marked, in Defendant's Exhibit 3 (Folio 85 after page 6 of the Record). These injectors may be "likened to a water faucet"; "it depends on how far it is turned on as to how much water is going into your boiler." These are in the control of the engineer and each has the capacity of supplying 4500 gallons per hour to the boiler (Rec. 15, 51).

In the engine cab in view and reach of the engineer are located appliances by means of which the engineer can at all times determine the height of the water in the engine boiler. One of these appliances is a water glass, also called a water bottle. The other consists of three gauge cocks.

"The gauge cocks are located in different altitudes within easy reach of the engineer and by turn-

ing the gauge cock he can determine that he has water as high as that gauge cock and the second and third gauge cocks the same way. It is about eleven inches from the top of the crown sheet to the top reading of the top gauge cock. In other words \* \* \* if a man has three gauges of water he has eleven inches over his crown sheet (Rec. 19)."

"The water glass is not a round glass cylinder any more, it is flat, more for protection and safety. The height of the water stands in the glass." (Rec. 20).

"You can check the water glass against the gauge cocks and the gauge cocks against the water glass." (Rec. 46).

The water glass and gauge cocks are shown in Defendant's Exhibit 3 (Folio 85 near page 62 of Record).

The principal ground of recovery relied on by the plaintiff was the fact that the engine involved did not have installed in the crown sheet of the locomotive boiler a fusible plug, which is a brass plug "with a square on the bottom of it and drilled out either five or six small holes or one large hole and filled with babbitt metal or pewter of some soft substance." (Rec. 14). It is inserted just above the crown-sheet and "acts as a supplemental safety valve \* \* \* so that when the water gets low in the boiler the intense heat will allow this metal to become softened and run out \* \* \* and water escapes and drowns out the fire."

It was conceded by the defendant that no such plug was used on this engine or on any other engine used on the Baltimore and Ohio system.

The claims of negligence set forth in the plaintiff's amended petition (Rec. 80) were substantially as follows:

"First. In permitting a dangerous condition to exist in said engine, in that the crown sheet of the

boiler was defective by reason of being overheated prior to the explosion.

"Second. In equipping said engine with a defective water glass indicator, in that it did not indicate the real height of the water in the boiler.

"Third. In failing to furnish Groeger with a reasonably safe place in which to work.

"Fourth. In failing to make adequate and sufficient inspection of the engine and its equipment.

"Fifth. In failing to equip said boiler with a fusible plug.

"Sixth. In permitting the use of unfit and improper water in the engine, in that said water contained foreign matter, causing foam and resultant incorrect indication in the gauge cock of the height of the water in the boiler."

The trial court took from the jury as being unsupported by any evidence the second assignment of negligence regarding the water glass indicator and the sixth assignment of negligence that improper water was used (Rec. 55) and consolidating the first, third, fourth and fifth assignments of negligence limited plaintiff's case to the jury to two claims of negligence, as follows: (Rec. 55, 56)

"(1) Did the defendant permit or allow a dangerous, unsafe and insufficient condition to be and arise in and about the crown sheet of said boiler whereby it was weakened and became defective, unsafe and leaky; whether that was due to any or whatever cause, broken crown or stay-bolts or other causes, and if so, was the boiler explosion thereby caused in whole or in part. Plaintiff asserts that, and the defendant denies it. It will be for you to say under the evidence here, gentlemen, and the law as I state it to you, what the fact is in this respect.

*Required to be removed  
Some by Broken stay bolts -*

11

"(2) It being conceded that the defendant had failed to install and equip this locomotive engine with a fusible safety plug, it will be for you to say whether or not the standard of duty imposed by law upon the defendant, to see that any locomotive engine propelled by steam in use upon its road in interstate commerce was in a proper condition and safe to operate in the service to which it was put, that the same might be employed in the active service of moving traffic without unnecessary peril to life or limb, was violated by the failure to equip this engine with a fusible safety plug."

The Court also charged the jury--(Rec. 57 and 58)

"An interstate carrier, as well as any railroad carriers, owes the duty, of course, of availing itself of the best mechanical contrivances and inventions in known practical use which are or would be effective in making safe a locomotive boiler as against explosions. It is not bound to introduce a new appliance the moment somebody suggests it or discovers it, but is entitled to a reasonable time and opportunity to test it out and make any changes.

"Such I conceive to be the rules under which you are here to determine whether or not the standard of duty in making this engine safe did or did not require installation of a fusible plug. I say to you it is and was the duty of the defendant to avail itself of the best mechanical contrivances and inventions in known practical use which were or are effective in making the boilers safe as against explosions. \* \* \*

"If you shall find, under the charge that I have given you, that a fusible safety plug was required by that standard, and that it was a mechanical means and contrivance in known practical use and effective more than was any other that had been installed by the defendant on this engine, then its absence would be a violation of the Boiler Inspection Act, and if the explosion resulted in whole or in part because of the

absence of the fusible plug, and the decedent thereby met his death, plaintiff would be entitled to recover.

The trial resulted in a verdict in the sum of \$10,576, upon which the trial court entered judgment in favor of the plaintiff in that amount (Rec. 5).

#### A R G U M E N T.

On the facts thus presented we question the correctness of the judgment below on the following grounds:

**A. The facts fail to disclose a breach by the defendant of any duty or obligation imposed upon it or defined for it by any enforceable requirement of law.**

**B. The trial court erred in leaving to the jury the question of the interpretation of the Federal Boiler Inspection Act, i. e., in permitting the jury to determine the standard of duty imposed by such statute and then determine whether under the facts the defendant had complied with the standard thus determined by the jury.**

**C. The Court erred in charging the jury that defendant was obligated to avail itself of the best mechanical contrivances and inventions in known practical use which are or might be effective in making the locomotive safe as against explosion.**

**D. The trial court erred in leaving to the jury the question of whether or not the crown sheet of the boiler was in a dangerous or defective condition —this for the reason that there was no evidence in support thereof.**

The first three grounds relate in effect to and involve the question of the non-use by defendant of a fusible

plug, the last ground to the question of stay-bolts, and we proceed to their consideration in the order named, which is, it will be noted, in reverse of their order as submitted by the trial court to the jury:

A. We turn at once to the Boiler Inspection Act for the definition of the obligation asserted by plaintiff as the basis of liability. Section 2 thereof is as follows:

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"From and after the first day of July, nineteen hundred and eleven, it shall be unlawful for any common carrier, its officers or agents, subject to this act to use any locomotive engine propelled by steam power in moving interstate or foreign traffic, *unless the boiler of said locomotive and appurtenances thereof are in proper condition and safe to operate in the service to which the same is put, that the same may be employed in the active service of such carrier in moving traffic without unnecessary peril to life or limb,* and all boilers shall be inspected from time to time in accordance with the provisions of this act, and be able to withstand such test or tests as may be prescribed in the rules and regulations hereinafter provided for."

Does the section (1) contain an ascertainable standard of duty and (2) does this section, as construed by the trial court in its charge to the jury set up an obligation or requirement definite enough in terms to be susceptible of being enforced or complied with by the carrier?

We pass by as later discussed the question of the extent to which this act delegates to the Interstate Commerce Commission the duty to determine and enforce the standard said to be thus imposed and content ourselves with pointing out that in other sections (hereinafter quoted) the act requires that the boilers be able to withstand such tests as may be prescribed by regulations to be is-

sued by the Commission (Sec. 2). It also creates an organization of inspectors by and through whom the Commission approves or disapproves the carriers' rules for boiler inspection (Sec. 5). The inspectors are required to see to it that the carriers comply with these rules and repair such defects in the boilers and appurtenances as are thereby disclosed (Sec. 6) and further that when any boiler is found "not conforming with the requirements of the law or the rules and regulations established \* \* \* such boiler shall not be used until put in serviceable condition." (Sec. 6)

Section 9 provides a penalty of \$100 for each and every violation of the act or rule or regulation made under its provision or lawful order of any inspector.

This act has not thus been questioned in any reported decision even on the basis urged without success against the Safety Appliance Act, so-called, relating to automatic couplers, grab-irons, etc., (*Southern Railway Co. vs. United States*, 222 U. S. 20) nor has it been before this Court but several times. *Vandalia Railroad vs. Public Service Commission*, 242 U. S., 255 (in which the act itself was not involved) and *Great Northern Railway vs. Donaldson*, 246 U. S., 121 (where the act was directly involved but the question herein was not made or presented by the record).

This Court has had occasion in many cases to declare whether or not the particular statute under attack provided an ascertainable standard of duty as required by the Fifth and Sixth Amendments to the Constitution. One of the most recent cases is *United States vs. Cohen Grocery Co.*, 255 U. S., 81.

It was here declared that Section 4 of the Food Control Act of 1917 as amended (also known as the Lever

Act), in penalizing any unjust or unreasonable rate or charge in handling or dealing with any necessaries, forbade the exaction of an excessive price upon the sale of a commodity and, containing no ascertainable standard of guilt, was invalid under the requirements of the Fifth and Sixth Amendment. In the opinion of Chief Justice White reference is made to the various cases in which this Court had considered this question with reference to various statutes. Obviously the result in the *Cohen Grocery* case and the cases referred to in the opinion depended on the particular statute involved, the principle being clear, and we proceed at once to a discussion of the statute involved here.

Leaving aside the provisions of the act covering the function of the Interstate Commerce Commission and the system of inspection provided for, and assuming for the purpose of this discussion that the act consisted of Sections One, Two and Nine only, it will be observed that Section 2 contains the only measure of obligation provided. The locomotive boiler and appurtenances it is said shall be—

"in proper condition and safe to operate in the service to which the same is put, that the same may be employed in the active service of such carriers in moving traffic without unnecessary peril to life or limb."

✓ ✓

While the requirement of a "*proper condition and safe to operate*" may be considered by construing the phrase "*proper condition*" and the word "*safe*" together and thus determining that it was intended to require a boiler to be absolutely *safe* and therefore without danger under every and all circumstances (like a *secure* hand-hold or grab-iron or automatic coupler required under the Safety Appliance Act), the further provision of Section

2 does not support this conclusion for the reason that the phrase above referred to is immediately followed by the qualifying provision, to-wit:

“that the same may be employed in the active service of such carrier in moving traffic without *unnecessary* peril to life or limb.”

It is here, we submit, that the vice of the provision, as tested by the decision in *United States vs. Cohen Grocery, supra*, appears. So construed, the carrier is not prohibited from operating a locomotive in such condition that the boiler is *necessarily dangerous* to life and limb. The prohibition is against a boiler *unnecessarily dangerous*. Who, however, is to determine what is or what is not an unnecessary danger? This is not defined elsewhere in the act and in the building and construction of a locomotive boiler what guide or standard is provided the carrier by means of which it can determine an unnecessary danger and avoid the penalty of the statute?

The words “unnecessary danger” do not, it occurs to us, provide any more definite standard than the phrase “unjust or unreasonable rate” condemned by this Court in *United States vs. Cohen Grocery Co., supra*.

Is this provision “so explicit that all men subject to their penalties may know what acts it is their duty to avoid?” *United States vs. Brewer*, 139 U. S., 278, 288. The section “forbids no specific or definite act.” *United States vs. Cohen Grocery Co., supra*, p. 89.

The considerations here urged were suggested although not passed upon in *United States vs. Pennsylvania R. R. Co.*, 242 U. S. 208, 237, in connection with a requirement involving the phrase “*reasonable request and reasonable notice*.” See also *International Harvester Co. vs. Kentucky*, 234 U. S. 216; *Collins vs. Ken-*

tucky, 234 U. S. 634; *American Machine Co. vs. Kentucky*, 236 U. S. 660.

Thus construed, the provision does not meet the requirements of the rule in *Miller vs. Strahl*, 239 U. S. 426, and *Omaechevarria vs. Idaho*, 246 U. S. 343, in which specific acts were enjoined or prohibited.

Nor ought the principle that enactments of this character shall be liberally construed (*Louisville & Nashville R. R. Co. vs. Layton*, 243 U. S., 617) supply a non-existent rule of conduct.

Assuming, however, that it may be said that the provision of Section Two, in so far as the question of an ascertainable standard of conduct is concerned, must be construed in connection with the other sections of the act, to-wit, Three, Four, Five and Six, and that the rules and regulations of the Commission and inspectors furnish the standard of duty attempted to be defined by Section Two, it is clear that the record here does not disclose and it is not the fact that the Commission has, so far as any condition material to this case (except the matter of broken stay-bolts later discussed) is concerned, assumed to determine what is and what is not an unnecessarily dangerous condition in the locomotive boiler, but on the contrary the record affirmatively establishes that the Commission, for example, had not required, by any rule or regulation, the use of a fusible plug. (Rec. 57 where the Court so charged the jury.)

It, therefore, follows that so far as the question of a fusible plug was concerned, not only was there no evidence on which the plaintiff was entitled to go to the jury but also the court in its charge to the jury erroneously defined defendant's duty (Rec. 56 and 57), which was duly excepted to by defendant (Rec. 61) and assigned as error

(Rec. 70, 71 and 72). The Court's charge on the question of a fusible plug is as follows: (Rec. 56)

"Now, what is the law? As I have stated, these issues are controlled by provisions of the Boiler Inspection Act and by certain provisions of the Federal Employers Liability Act. The Boiler Inspection Act, among other things, provides that it shall be unlawful for any common carrier to use any locomotive engine propelled by steam power, moving in interstate or foreign traffic, unless the boiler of said locomotive engine and appurtenances thereof are in a proper condition and safe to operate in the service to which the same is put, that the same may be employed in the active service of such carrier in moving traffic without unnecessary peril to life or limb.

"Such was the duty of the defendant here, and it owed that duty to John Groeger, the deceased engineer, in the equipment of (fol. 74) and putting and keeping this engine in condition. The question, then, will be whether or not the defendant used this locomotive engine when it was not in proper condition and safe to operate in the service to which it was put so that the same might be employed in the active service of such carrier without unnecessary peril to life or limb. The standard of duty is that they shall put it in proper condition and keep it in proper condition and safe to operate; it is required that it should be put in a condition and kept in a condition so that it might be employed in the service without unnecessary peril to life or limb. This is an absolute duty."

The charge then proceeds (Rec. 57) as follows:

"Now, as to the failure to install a fusible plug, that depends upon different considerations. In other words, whether the standard of safety which is prescribed by that act requires a fusible plug depends upon somewhat different considerations, as to which it is my duty to charge you. If you shall say and find that the standard of duty imposed by the law required

a fusible safety plug to be installed, then the absence of the fusible safety plug would impose upon the defendant here an absolute liability, and the plaintiff would be entitled to recover if the absence of it contributed in whole or in part to cause the explosion and the resulting death. The law does not say that locomotive engines thus used shall have fusible plugs in them. The Interstate Commerce Commission has authority to prescribe regulations for inspections and for equipment under the Boiler (fol. 75) Inspection Act, and the Interstate Commerce Commission has not prescribed as a requirement that fusible safety plugs shall be installed on locomotive engines. It becomes, then, a question to be determined by you under the facts and circumstances of this case whether or not the duty to put locomotive boilers in proper condition so as to make them safe requires the installation of a fusible safety plug."

and later (Rec. 58) :

"In determining that you will take into consideration all the facts and circumstances of the case, and the practice so far as it has been proven to you among railroad men, reasonably prudent and careful railroad operators, what they have done and what their judgment is in regard to the matter, and determine whether or not the fusible safety plug under the law as I have stated it to you was proper and necessary to put this engine in proper and safe condition to operate, and if the operation of it without such fusible safety plug created an unnecessary peril to the life and limb of the employes. If you shall find, under the charge that I have given you that a fusible safety plug was required by that standard, and that it was a mechanical means and contrivance in known practical use and effective more than was any other that had been installed by the defendant on this engine, then its absence would be a violation of the Boiler Inspection Act, and if the explosion resulted in whole or in part because of the absence of the

fusible plug, and the decedent thereby met his death, plaintiff would be entitled to recover."

If the Boiler Inspection Act contains no ascertainable standard of duty or if in absence thereof the Interstate Commerce Commission was required to define such duty and proceeding to do so had not required a fusible plug, this charge is erroneous.

This brings us to our second proposition, to-wit, that irrespective of the question just considered—

**B. The trial Court erred in leaving to the jury the question of the interpretation of the Boiler Inspection Act.**

The above quoted part of the Court's charge when considered in connection with the evidence throws into clear relief the difficulty encountered in the construction of the Boiler Inspection Act adopted by the learned trial judge who was forced it will be noted to leave it to the jury (the Commission not having required a fusible plug) to determine the standard of duty imposed by the Act and then to determine whether the defendant had violated this standard. The record contains a detailed description of a fusible plug, its use, purpose, design, etc. For example, McGann says: (Rec. 14)

"I have seen a fusible plug in locomotives. Its purpose is to warn the engineer in case of his negligence in allowing the water to become low in the boiler; it tells him he has lost his water. If the engineer in charge of the boiler on line of road finds water getting low, getting below a safe point, he draws the fire. A fusible plug is a brass plug with a square on the bottom of it and drilled out, either five or six small holes, or one large hole, and filled with babbitt metal or pewter or some soft substance. The

crown sheet is tapped out at the forward part, the highest part of the crown sheet, and this plug screwed in, extending above the sheet about one-half or three-quarters of an inch, so that when the water gets low in the boiler, the intense heat will allow this metal to become softened and run out in the lower part of the fire-box, and some water escapes and drowns out his fire, and makes an awful noise in the fire-box, and then he knows his water is low and he takes the precaution to draw the fire to save further damage. It acts as a supplemental safety valve, but they are considered unsafe, due to the fact that this accumulation of scale gets on this metal plug and while the water is still over this plug, or is on top of the soft metal, it allows it to come out, run out in the fire-box, and oftentimes causes serious injury and serious burns. I never knew, in my experience, the blowing out of a fusible plug to blow up the boiler. It is not as serious when the fusible plug melts out and allows the escape of the steam, as when the boiler blows up. The fusible plug is placed from half to three-quarters of an inch above the top of the crown sheet. When the water gets below the highest part of the fusible plug and before it reaches the crown sheet, it exposes the top of the fusible plug with the soft metal in it, and the soft and fusible metal will melt out before the bolts of the crown sheet."

and Rec. 16:

"The objection to fusible plugs is they accumulate scale on top of the plug and this allows the metal to come out and causes the engine to fail and it is necessary to give up service on line or road. It oftentimes results in injuries to the crews; maybe the fireman is down putting in a fire, and if he should be firing there just at the time the metal comes out of the plug, that pressure in the boiler will blow the fire and hot cinders out of the fire door and it has proven very detrimental. The water and steam, when it comes out through the plug, comes down into the

fire-box at a pressure of 175 to 200 pounds per square inch, throwing the fire and hot coals out of the fire door. It has been determined to be unsafe, at least on the Baltimore & Ohio, I would say back as far as 1902 or 1903. Prior to that time, I think they were used; that was before my time, before 1906."

Boyden (Rec. 17) testifies:

"In railroad talk, a fusible plug is known as a soft plug. It is put into the highest point of the crown sheet, that is, the top of the inside of the fire-box. There is a soft metal applied to this brass plug so that if the water gets low this metal will melt. It is used as an alarm or a safety device to the engineer to know that his water is low in his boiler. When the fusible plug operates, it relieves the pressure between the fire-box sheet and the outside wrapper sheet, so that a boiler cannot blow up."

Karnell (Rec. 30) testifies:

"The fusible plug is not in use on the New York Central System because it is not practical. Due to the water surging back and fourth over locomotive crown sheets, we find that the tin in the fusible plug will fuse and melt, therefore permitting the water to get into the fire-box and putting out the fire. The movement of the locomotive in ordinary operation with plenty of water causes a movement of the water over the crown sheet back and fourth, so that on a grade, or for other reasons, a fusible plug is impractical because it is bared; that is to say, the water leaves it at times due to the ordinary operation of the engine. When a plug blows out it blows out through the fire-box, permitting the water and steam in the fire-chamber. If the fireman at that time happens to be putting fire into the fire door, he does not necessarily get the fire and steam; but it would tend to put the fire out. I wouldn't say as to injuries happening to the fireman."

and on page 31 says:

"As a rule, in the general railroading world, all the railroad systems, they are not used. They have not been accepted and used by master mechanics and locomotive engineers as standard equipment in locomotive service."

Hedeman (Rec. 35 and 36) testifies:

"Fusible plugs are not used on the Baltimore & Ohio Railroad Company's engines. We have approximately 2700 engines. The system extends to St. Louis, Chicago, Philadelphia, Baltimore, with numerous branch lines.

"I have made inquiries on the question of the use of soft plugs on locomotives other than the Baltimore & Ohio.

"Fusible plugs are regarded as an encouragement to the engineer to not keep careful watch on his water, not keep as careful watch on the water as he would if he didn't have a fusible plug. In other words, he would rely to a certain extent on that fusible plug blowing out when the water got low, and if he wouldn't have the fusible plug he would be very careful with his water and watch his gauge cocks and water glass. When the fusible plug blows out the water and steam come out at the front end of the crown sheet and it blows it down on the fire."

"The B. & O. is the only railroad I am working for, I have not seen a fusible plug in use on the boiler of a locomotive engine. I know the purpose of it. Its purpose is when the plug would be exposed and not covered with water the soft metal would melt and come out and allow some water to escape. The plug won't prevent the water from getting down to the top of this crown sheet; it would give warning.

"With a fusible plug in this boiler at the time of the explosion, all pressure within that boiler would not have been released by the action of that fusible

plug before the water could get low and leave the peacock blue mark on the top of the crown sheet. When the fusible plug metal melted it would blow steam and water down and give warning. Theoretically, it would release the pressure in that boiler, but it would be negligible through that small hole. The force of the steam going through the holes in that fusible plug would be as nothing compared with the blowing up of that boiler. When the fusible plug blows out it gives warning that the water is low. It is self-evident that the danger of a fusible plug blowing out is nothing compared to the danger of the boiler blowing up."

Ayers (Rec. 38) testifies:

"The fusible plug is not in use upon the locomotive boilers of the Nickel Plate Railroad. During the course of my connection, I have made a somewhat casual investigation, not particularly searching, into the extent of the use of fusible plugs on locomotive boilers. Without any definite figures to support my answer, it is my opinion that the use of the fusible plug in railroad work is not very general.

"The American Railway Master Mechanics Association is now a part of the American Railway Association as a mechanical section. Prior to that time it was an association of railway motive power officials, that is, the master mechanics or similar officials of the various railroads had an association, in which they met and discussed their problems, made reports and recommendations, and, in addition, adopted standard practices and designs. Those standard practices and designs were not compulsory but they represented the consensus of opinion as to what was the best practice. This American Railway Master Mechanics Association comprised representatives of nearly all the railroads in the country.

"According to the proceedings of the American Railway Master Mechanics Association, they passed

a resolution in 1899. Defendant's Exhibit 5 is a copy of the resolution as it appears in the 1917 and '18 proceedings of the American Railway Master Mechanics Association. It was adopted in 1899, and those things are carried forward from year to year in the proceedings. That was copied correctly directly from a printed copy of the proceedings, and reads as follows:

‘Resolved that it is the sense of the American Railway Master Mechanics Association that the use of fusible plugs in the crown sheets of locomotive fire-boxes is not conducive to the prevention of the overheating of the crown sheet.’”

We submit that under these circumstances the non-use of a fusible plug should not have been submitted to the jury under Section 2 of the Boiler Inspection Act already quoted. Even if this duty thus attempted to be defined reaches the dignity of a specific requirement, such duty is not unlimited nor does it make the carrier an absolute insurer against any contingency which might result in injury or loss of life.

The phrases “proper condition and safe to operate” and “unnecessary danger to life and limb” should be given the usual and ordinary meaning attached to such words having due regard for the connection in which they are employed and construed in connection with the remaining sections of the Act. *In other words, does this phrase impose on the carrier the duty of equipping an engine so as to protect and insure an engineer against the consequences of his own negligence?* It must be remembered that upon this record this engine was turned over to Groeger in “proper condition and safe to operate” and that he himself permitted a condition of low water and created the danger.

An examination of the other sections of the Boiler Inspection Act supports this view of the law: For example the closing phrase of Section 2 provides:

“And all boilers shall be inspected from time to time in accordance with the provisions of this act, and be able to withstand such test or tests as may be prescribed in the rules and regulations hereinafter provided for.”

An examination of Sections 3, 4 and 5 shows that there is thereby created an organization of inspectors including a chief inspector. With this official the carriers are directed to file their rules and instructions for the inspection of locomotive boilers (Section 5). Thereafter the Interstate Commerce Commission upon hearing must approve such rules and instructions. In fact, the provisions of Sections 5 and 6 indicate an intent on the part of Congress to have not only the matter of boiler inspection but also the matter of boiler construction determined and passed on by the Interstate Commerce Commission. In this connection the following significant language appears in Section 6:

“His (referring to the inspector) first duty shall be to see that the carrier make inspections in accordance with the rules and regulations established or approved by the Interstate Commerce Commission and *that carriers repair the defects which such inspections disclose before the boiler or boilers or appurtenances pertaining thereto are again put in service.*” (Italics ours.)

Again:

“When any district inspector shall in the performance of his duty, find any locomotive boiler or apparatus pertaining thereto *not conforming to the requirements of the law or the rules and regulations established and approved as hereinbefore stated,*

he shall notify the carrier in writing that the locomotive is not in serviceable condition and thereafter such boiler shall not be used until in serviceable condition."

This and other provisions of the various sections of the Boiler Inspection Act clearly in our opinion, therefore, disclose an intent by Congress that the Interstate Commerce Commission should be clothed with a greater authority and duty than merely an inspection of boilers and providing rules and regulations in that regard. The right to inspect and regulate includes, we submit, the authority to say and determine what constitutes a defect or unsafe condition, otherwise the Inspection Act is without meaning. The act would be a futile thing if upon inspection the Commission could not deal with a defect or unsafe condition developed by such inspection. But as pointed out in the provisions just quoted the Commission is expressly given the authority to hold out of service any locomotive boiler or apparatus—

"not conforming to the requirements of the law or the rules and regulations, etc."

We, therefore, submit that the question of whether a boiler not equipped with a fusible plug was a violation of Section 2 of the Act was a question for determination by the Interstate Commerce Commission under the power given and duties imposed upon it by the sections above referred to. That this question was one for the Commission and not for the Court, much less the jury, is, it seems, clearly established by the decisions of this Court in an analogous situation involving the authority of the Commission to regulate tariffs and rates under the Interstate Commerce Act. Here the question is primarily within the jurisdiction of the Commission. *Texas & Pacific Railway Co. vs. Am. Tie Co.*, 234 U. S.

138; *Director General vs. Viscos Co.*, 254 U. S. 498. Hence the Commission not having required a fusible plug (Rec. 57) its absence cannot be so made the basis of a claim of violation of the act.

It is to be kept in mind, moreover, that the non-use of a fusible plug by the Company does not involve dangerous or defective construction so far as the boiler or locomotive itself is concerned; nor does it involve a question of inadequate or defective design, or the use of improper appliances in the make-up or construction of the particular boiler. This case involves solely the non-use or absence in a boiler of an appliance otherwise unnecessary, the use of which is to protect the engineer from the result of his own negligence and disregard of duty owed not only to his employer but also to his fellow employes. In this connection the Court will again recall that the Company had turned this engine over to Groeger in first class condition so far as the operating appliances, gauge cocks, water glasses, etc., were concerned, and it therefore follows that Groeger had at hand all the necessary appliances by means of which he could determine and control the height of the water in this boiler and thus prevent the disaster which occurred.

The error into which the Court fell resulted, we submit, from (1) its construction of the terms of the Boiler Inspection Act and (2) its assumption that under the act so construed the failure of the Interstate Commerce Commission to require a fusible plug left the question open to each jury in a particular case to say whether or not the use or non-use of this kind of an appliance was or was not negligence; and (3) the Court's misapprehension of the scope of the decision in *Railway Co. vs. Doualdson*, 246 U. S. 121.

An examination of this case will show that while the non-use of a fusible plug was assigned as negligence the *question of the validity, scope and intent of the Boiler Inspection Act was not considered nor did the record present as this record presents, any question in that regard.* While it is true that the non-use of a fusible plug is mentioned in the opinion the case turned on the question of defective and unsafe construction.

The locomotive boiler involved in the *Donaldson* case appears to have been equipped with button headed crown sheet bolts proper in a coal burning engine but improper and unsafe when oil was used for fuel. No change in this construction was made when a change in fuel from coal to oil was made.

Furthermore, so far as the question of a fusible plug was concerned the evidence of the plaintiff was to the effect that the *water was not low*, i. e., that the *explosion was not due to low water.* This was disputed and the jury having found for the plaintiff it is to be assumed that the failure of that particular boiler was not due to low water. Hence the question of use or non-use of a fusible plug which only functions in the event of low water was not only not involved as a matter of law but also not in the case as a matter of fact. In the case at bar there is no question but that the explosion was due to low water. The question here is, who was responsible for the condition of low water?

The case clearly distinguishes itself from the case at bar. The question which the jury in the *Donaldson* case had to determine was whether or not a particular form of construction was in fact unsafe. The Supreme Court held that this was an open question for the jury and that the failure of a boiler inspector to

disapprove such construction was not conclusive on that point. This ruling is clearly not inconsistent with our views hereinbefore expressed as to the scope of the Boiler Inspection Act. We are not claiming that the failure of the Inspector, for example, to discover on inspection a defective condition of a particular engine would constitute a defense to the carrier when a boiler failure resulted from a defect which the inspector overlooked. Nor do we claim that the failure by an inspector to disapprove the non-use of a fusible plug would be a defense in this case, and the Court will remember that in the *Donaldson* case the evidence failed to show an approval of the construction there employed. (p. 127).

Our contention goes deeper: It is, in substance, that when a locomotive boiler is in all other respects—

“in proper condition and safe to operate \* \* \*”  
and “may be employed in the active service of such carrier in moving traffic without unnecessary peril to life or limb”

*the non-use by the carrier of an appliance which might protect the engineer of the locomotive from the consequences of his negligent operation of an otherwise safe engine is not and may not be held to be a breach of duty under the Boiler Inspection Act, which does not require a fusible plug either expressly nor through regulations in force pursuant to the provisions of such act.*

The question here involved is purely one of law—the non-use of a fusible plug in this boiler was admitted by the Company, which in addition to the fact that the Commission did not require fusible plugs showed that it was not used by various standard railroad systems, such as the New York Central, The Chicago, Burlington & Quincy, The Illinois Central, Baltimore and Ohio and The New York, Chicago and St. Louis (Nickel Plate).

Likewise, it appears that The American Railway Master Mechanics Association, an association of motive power officials from nearly all the railroads of the country, have by resolution gone on record against the use of a fusible plug. (Rec 39).

If the mere absence of a fusible plug from a locomotive boiler safe in all other respects is to be left to the jury to say that such constitutes a violation of the Federal statute requiring locomotive boilers to be in proper condition and safe to operate, the jury will also be given the duty to ascertain whether the presence of such a safety device is a violation of the statute where injury results therefrom. Where an injury results from a fusible plug melting and shooting steam into the fire box of the locomotive, as is likely to occur (testimony of McGann, Rec. 16) the trial Court would have to leave to the jury the question of whether the presence of such plug was a violation of the Boiler Inspection Act. *A jury might very well hold that the installation of a plug was a violation of the statute since they apparently are not in general use and have been condemned by The American Railway Master Mechanics Association.* Thus, whether a railroad company installs or fails to install a fusible plug it is at the mercy of a jury which is permitted to find that either its presence or absence is a violation of the Federal statute which imposes an absolute liability on the company in case injury results from a breach thereof. Obviously it was the design of Congress that the statute should be given a consistent application by rules promulgated by the Interstate Commerce Commission and not that juries should place varying and inconsistent interpretations thereupon, making carriers liable regardless of whether they installed or failed to install some particular safety device not spe-

cifically required by the statute or regulations adopted thereunder.

**C. The Court erred in charging the jury with regard to asserted obligation of defendant to avail itself of the best mechanical contrivances and inventions in known practical use which are or might be effective in making the locomotive safe as against explosion.**

The trial Court charged that such was the defendant's duty, using the following language:

"An interstate carrier, as well as any railroad carriers, owes the duty, of course, of availing itself of the best mechanical contrivances and inventions in known practical use which are or would be effective in making safe a locomotive boiler as against explosions. It is not bound to introduce a new appliance the moment somebody suggests it or discovers it, but is entitled to a reasonable time and opportunity to test it out and make any changes.

"Such I conceive to be the rules under which you are here to determine whether or not the standard of duty in making this engine safe did or did not require installation of a fusible plug. I say to you it is and was the duty of the defendant to avail itself of the best mechanical contrivances and inventions in known practical use which were or are effective in making the boilers safe as against explosions. \* \* \* If you shall find, under the charge that I have given you, that a fusible safety plug was required by that standard, and that it was a mechanical means and contrivance in known practical use and effective more than was any other that had been installed by the defendant on this engine, then its absence would be a violation of the Boiler Inspection Act, and if the explosion resulted in whole or in part because of the absence of the fusible plug, and the decedent thereby met his death, plaintiff would be entitled to recover."

This definition of duty again raises the question of the existence, extent and nature of the obligation imposed by the Boiler Inspection Act and is erroneous if the propositions heretofore urged by us in that regard are correct. We claim, however, that this charge is otherwise erroneous. In other words we do not believe that the defendant is bound under the Boiler Inspection Act however construed to install the best mechanical devices to insure the safety of the boilers of its locomotives and that the Court erroneously made the standard of its duty dependent upon the practice of other carriers which is not the standard attempted to be imposed by the statute.

The Boiler Inspection Act in Section 2 prohibits the use of locomotive engines unless the boilers thereof "are in proper condition and safe to operate in the service to which the same are put, that the same may be employed in the active service of such carrier \* \* \* without unnecessary peril to life or limb." The statute thus attempts to define and establish the standard of the defendant's duty. The common law rule in force prior to the adoption of such statute required a common carrier to use ordinary care in providing and maintaining equipment reasonably safe and suitable for the use of it employes. Congress by the Boiler Inspection Act obviously designed only to make such duty absolute rather than qualified as being based on negligence. The evident legislative purpose was to impose liability on carriers if injury resulted from their failure to furnish locomotive boilers which were reasonably safe, i. e., not unnecessarily dangerous, regardless of whether they were negligent in doing so or not. The duty imposed by the common law upon railroad companies is now absolute instead of being based on negligence but the character of

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the appliances they are required to furnish remains the same, that is, reasonably safe and suitable for the use of their employes and not unnecessarily dangerous to them. The failure to furnish a locomotive with a reasonably safe boiler is negligence *per se* but the statute does not require that the boiler furnished be of any different character than was required at common law.

That Congress by the adoption of the Safety Appliance Act and the Boiler Inspection Act merely changed the duty from a qualified one based upon negligence to an absolute one is evidenced by several decisions of this Court.

In *San Antonio Ry. Co. vs. Wagner*, 241 U. S. 476, 484, this Court stated with reference to the Safety Appliance Act:

"If this Act is violated, the question of negligence in the general sense of want of care is immaterial. 241 U. S. 43, and cases there cited. But the two statutes are *in pari materia*, and where the Employers' Liability Act refers to 'any defect or deficiency, due to its negligence, in its cars, engines, appliances,' etc., it clearly is the legislative intent to treat a violation of the Safety Appliance Act as 'negligence',—what is sometimes called negligence *per se*."

The court in *Louisville & Nashville R. R. vs. Layton*, 243 U. S. 620, stated with reference to the same statute:

"By this legislation the qualified duty of the common law is expanded into an absolute duty with respect to car couplers and if the defendant railroad companies used cars which did not comply with the standard thus prescribed they violated the plain prohibition of the law, and there arose from that violation a liability to make compensation to any employe who was injured because of it."

In *St. Louis, I. M. & S. Ry. Co. vs. Taylor*, 210 U. S. 281, the court held:

"In the case before us the liability of the defendant does not grow out of the common law duty of master to servant. The Congress, *not satisfied with the common law duty and its resulting liability*, has prescribed and defined the *duty by statute*. We have nothing to do but to ascertain and declare the meaning of a few simple words in which the duty is described. It is enacted that 'no cars, either loaded or unloaded, shall be used in interstate traffic which do not comply with the standard.' There is no escape from the meaning of these words. Explanation cannot clarify them, and ought not to be employed to confuse them or lessen their significance. The obvious purpose of the legislature was *to supplant the qualified duty of the common law with an absolute duty deemed by it more just.*'"

The above language was quoted with approval in *C. P. & Q. Ry. Co. vs. U. S.*, 220 U. S. 559.

It thus appears that the only change made by the Boiler Inspection Act is in the abrogation of the requirement of negligence as a condition of the defendant's liability. The duty of the carrier is not absolute but the character of the equipment it is required to furnish is the same and if under the common law and the Federal Employers' Liability Act there was no requirement that a carrier avail itself of the best mechanical contrivances and inventions in known practical use, there is no such requirement now and the charge of the court was erroneous and prejudicial.

That there was no such requirement existing under the common law or the Federal Employers' Liability Act is clearly disclosed by the language of this Court in *Chicago & Northwestern R. R. vs. Bower*, 241 U. S.

470, 473. There action was brought under the Federal Employers' Liability Act, it being asserted that the defendant supplied the plaintiff with a locomotive containing certain defective appliances. The Court stated:

“The rule of law is: That the employer is under a duty to exercise ordinary care to supply machinery and appliances reasonably safe and suitable for the use of the employe, *but is not required to furnish the latest, best and safest appliances, or to discard standard appliances upon the discovery of later improvements, provided those in use are reasonably safe and suitable.* *Washington, etc. R. R. v. McDade*, 135 U. S. 554, 570; *Patton v. Tex. & Pac. Ry.*, 179 U. S. 658, 664.” (Italics ours.)

In *Washington R. R. vs. McDade*, 135 U. S. 554, 570, it was held:

“The general principles of law by which the liability of an employer for injuries to an employe, growing out of defective machinery, is tested are well settled by those decisions. Neither individuals nor corporations are bound, as employers, to insure the absolute safety of the machinery or mechanical appliances which they provide for the use of their employes. *Nor are they bound to supply the best and safest or newest of those appliances for the purpose of securing the safety of those who are thus employed.* They are, however, bound to use all reasonable care and prudence for the safety of those in their service, by providing them with machinery reasonably safe and suitable for the use of the latter.” (Italics ours.)

To require a carrier to avail itself of the best mechanical devices in known practical use is to measure its duty by the practice of other carriers and not by the standard established by law. The equipment of other carriers may go beyond a compliance with the duty im-



*| Practice does  
not establish standard |*

posed upon the defendant or it may fall short of compliance therewith. The law requires locomotive boilers reasonably safe and in proper condition and not unnecessarily dangerous. That is the standard and although the practice of other carriers may be evidence of a compliance or a failure of compliance therewith the standard is not defined or established by such practice. If the equipment used by a carrier complies with this standard it has discharged its duty and the fact that other carriers employ other equipment which to some juries might seem more or less dangerous than that used by the defendant, is immaterial. Obviously the practice of other carriers is evidence alone of the compliance or failure by the defendant with its duty but it does not define or fix the standard of such duty.

As stated in *Wigmore on Evidence*, Sections 459 to 461:

"Another objection that may occur is that the conduct of another person is not to be taken as a standard determining legal duty. This is undoubtedly true; but it is easy to distinguish between the conduct of another person as a standard of duty and the same conduct merely as evidence of the nature of the thing which is the subject of the duty.

\* \* \* The distinction is itself a simple one. (1) The conduct of others evidences the tendency of the thing in question; and such conduct—e. g., in using brakes on a hill, felt shoes in a powder factory, railings around a machine, or in not using them—is receivable with other evidence showing the tendency of the thing as dangerous, defective, or the reverse. But this is only evidence. The jury may find from other evidence that the thing was in fact dangerous, defective, or the reverse, and that its maintenance was or was not negligence, in spite of the above evidence. (2) Meanwhile, the substantive law tells them what the standard of conduct for negligence

is; and this standard is a fixed one, independent of the actual conduct of others. To take that conduct as furnishing a sufficient legal standard of negligence would be to abandon the standard set by the substantive law, and would be improper. This conduct of others, then, (1) is receivable as some evidence of the nature of the thing in question, because it indicates what is the influence of the thing on the ordinary person in that situation; but (2) it is not to be taken as fixing a legal standard for the conduct required by law."

In *Texas & Pac. R. R. vs. Behymer*, 189 U. S. 468, this Court held that whether the defendant railroad company operated a train in the usual and ordinary way was not the criterion of its liability for resulting injury, saying:

"What usually is done may be evidence of what ought to be done but what ought to be done is fixed by a standard of reasonable prudence, whether it usually is complied with or not."

*Wabash R. R. Co. vs. MacDaniels*, 107 U. S. 454;  
*Shandrew vs. Chic. Mil. & St. Paul R. R.*, 142 Fed.

320;

*Midland Valley R. R. Co. vs. Bell*, 242 Fed. 803.

Similarly in this case what equipment the defendant ought to have furnished is fixed by the standard established by law and what equipment other carriers furnish is, if anything, evidence alone of compliance or failure of compliance with such standard and the practice of other carriers does not establish the standard of defendant's duty. By statute the defendant is required to supply locomotives in proper condition and safe to operate and not unnecessarily dangerous. Such is apparently defined by the pre-existing common law rule as requiring

merely reasonably safe equipment and appliances. Clearly under the decisions above noted defendant was not required to furnish the best and safest equipment known nor was it required to adopt and use the best equipment in known practical use. The practice of other carriers is material only as evidence and the Court erred in charging the jury that the defendant was required to furnish the best equipment in known practical use to insure its boilers as against explosions.

D. The only remaining question in the case relates to the claim of the plaintiff based on the admitted condition of seven stay-bolts in this boiler and we proceed to a discussion of this proposition, to-wit:

**The Court erred in leaving to the jury the question of whether or not the crown sheet of the boiler was in a dangerous or defective condition—this for the reason that there was no evidence in support thereof.**

The trial court it will be remembered and as disclosed by the charge to the jury took from the jury the second and sixth assignments of negligence and consolidating the remaining claims of negligence limited plaintiff's case to the jury to two propositions. One of them involving the fusible plug has heretofore been discussed. The second was based on the fact admitted by defendant that prior to the accident there were in the boiler seven broken stay-bolts. (Rec. 13). Their location is plotted on defendant's model, Exhibit 1 (Rec. 35). As hereinafter disclosed these stay-bolts were not in any sense a contributing factor in this explosion—a fact respecting which there was no issue between plaintiff's and defendant's witnesses.

The charge of the Court on this branch of the case was as follows:

"(1) Did the defendant permit or allow a dangerous, unsafe and insufficient condition to be and arise in and about the crown sheet of said boiler whereby it was weakened and became defective, unsafe and leaky; whether that was due to any or whatever cause, broken crown or stay-bolts or other causes, and if so, was the boiler explosion thereby caused in whole or in part. Plaintiff asserts that, and the defendant denies it. It will be for you to say under the evidence here, gentlemen, and the law as I state it to you, what the fact is in this respect."

The Court further charged (Rec. 59):

"And by the proximate cause in that connection is meant a cause except for the existence of which the explosion would not have occurred. To be more specific, and as applied to one aspect of the case, complaint is made that in the crown sheet of this boiler there were six broken stay-bolts and one crown-bolt, and that two of these broken stay-bolts were adjacent to each other, whereas the inspection requirements of the Interstate Commerce Commission regulations forbid the use of an engine under the Boiler Inspection Act when there are five or more broken bolts, or where there are two broken bolts contiguous to each other. Even if it should be proved that that requirement of the law was violated, the plaintiff would not be entitled to recover by reason of such violation unless you should further find from a preponderance of the evidence that this specific violation, these specific defects, was either the sole or one of the causes but for the existence of which the explosion would not have taken place. If the existence of these broken stay-bolts had nothing to do with causing the explosion, then you should disregard their existence because, as I say to you, the negligent or wrongful conduct which you may find by a preponderance of the evidence the defendant is guilty of, must have been either the sole or one of the proximate causes of the explosion and of the resultant death of plaintiff's decedent."

Irrespective of the question heretofore discussed as to whether this states the proper definition of the duty imposed on defendant by the Boiler Inspection Act, we claim that there was no evidence warranting the court in submitting to the jury any question as to the unsafe and defective condition of the boiler or the crown sheet therein, and that such action was therefore erroneous and prejudicial.

The record in this case contains practically a complete history of this engine so far as its condition and matters of inspection are concerned, from June, 1920, until September 3, 1920, at which time the engine was turned over to Groeger for the trip on which the explosion occurred. For example, on June 5, 1920, engine No. 2541 was given a general overhauling and repair, as shown by defendant's Exhibit No. 12 (Rec. 67 to 69). The character of this overhauling is evident from the subject-matter of defendant's Exhibit 12 and is described by witness McGann (Rec. 51 and 52). In addition to this semi-annual overhauling and report thereof, the Interstate Commerce Commission regulations require a monthly locomotive inspection and repair report. This was done on August 11, 1920, about three weeks prior to the accident, as shown by defendant's Exhibit 6 (Rec. 63). The character of this inspection and repair is shown by that exhibit and is also described by witness Cecil (Rec. 39) and witness Dixon (Rec. 44). This latter witness also describes the process of washing a boiler (Rec. 44 and 45). In railroad language, the process of inspecting and repairing an engine called for by the monthly inspection report (Defendant's Exhibit 6, Rec. 63) is known as "forming" an engine (Rec. 43) and is also further described by witness Hooper (Rec. 43).

It also appears that the boiler of this engine was washed on August 5, August 21 and August 30 (Rec. 44). In connection with these reports, the various witnesses who took part in the inspection and repairs made and thus reported, testified as to what was done (testimony of Cecil, Rec. 39; Brewer, Rec. 40; Kennedy, Rec. 42; Hooper, Rec. 42; Dixon, Rec. 43). In addition to these employes, two engineers of the Company (already referred to) who operated this engine immediately prior to Groeger's trip, testified regarding the condition of the engine. For example, Howard Lisle (Rec. 46) testified that he as an engineer operated this engine on the 29th, 30th and 31st, and that

"while I was operating the engine on the 29th, 30th and 31st of August, I did not have a bit of trouble with the injectors. The gauge cock was O. K. and the water glass. You can check the water glass against the gauge cocks and the gauge cocks against the water glass. They correctly show the height of the water."

T. E. Peele (Rec. 45) says:

"I had it (engine No. 2541) out of Holloway on the 31st of August \* \* \*. I was hauling a freight train \* \* \*. When I had that train on the 31st of August the condition of her gauge cocks was good and her injectors were good. I did not have any trouble or notice any defect in the water glass. Her steaming qualities, as far as being an efficient engine is concerned, were good."

J. W. Hamilton, engineer (Rec. 41) had the engine on the day preceding the explosion, and testifies that he made out a work report (Defendant's Exhibit 8, Rec. 65) at the conclusion of his run, calling attention to what trouble had developed during the run which ended at 1:30 p. m. on September 2nd. After describing the engine, Hamilton testifies:

"When I operated that locomotive she was a good locomotive, one of the best we had."

With respect to water conditions, W. J. Dixon, a witness on behalf of plaintiff, testified that the water conditions at Holloway, Fairport, Bridgeport and Benwood were good (Rec. 9).

The foregoing testimony, which is not disputed, constitutes, with the exception hereinafter referred to, the proof respecting the condition of this engine and these appliances when it was turned over to Groeger prior to his trip.

The exception above referred to is with regard to certain stay-bolts which were found after the explosion to have been broken, and which, according to the evidence, were broken prior to the accident. (Rec. 13.)

With respect to these stay-bolts, it appears from the record that under the regulations of the Interstate Commerce Commission no engine may be used where it has more than five broken bolts, or where it has two broken bolts which are adjacent to each other (Rec. 22, 37 and 59). In this case there were six intermediate stays, two of which were adjacent, and one stay-bolt at the forward part of the crown sheet, broken. The location of these broken bolts is described on page 13 of the record.

There is in this record, however, not a scintilla of evidence to the effect that the broken bolts (which appeared from their condition to have been broken prior to the accident) had any connection whatever with this explosion. Expert witnesses for plaintiff and defendant agree in this conclusion. For example, Charles McGann testifying on behalf of both plaintiff and defendant says (Rec. 16):

*"These stay-bolts had no contributing cause toward the failure whatever."*

and in the Record, page 50, further says:

*"In my opinion those broken bolts contributed  
none whatever to the tear of the crown sheet and  
the consequent explosion of the boiler."*

The opinion of John A. Boyden is indicated by the following question and answer (Rec. 22):

*"Q. Now, supposing after a tear or boiler  
explosion, the tear in the crown sheet was located  
by those who inspected the engine after the explo-  
sion, and suppose that that tear was not adjacent,  
nor did it come inward near the bolt or two bolts,  
that were broken, but that the tear pulled out good  
bolts, pulled off the good bolts, you would have some  
difficulty, would you not, in coming to the conclu-  
sion that these other broken bolts were a contribut-  
ing factor to that boiler failure? A. I would."*

Charles A. Karnell, an expert from the New York Central Railroad Company, testified (Rec. 31):

*"The three stay-bolts as they are marked as  
broken there on each side, were not a contributing  
factor to the explosion, due to the fact that the solid  
stays had to let go first before they could come to  
this."*

Walter C. Hedeman (Rec. 35) testifies as follows:

*"Q. Now, Mr. Hedeman, having that in mind  
and having in mind the location of those seven bolts,  
in your opinion as a boiler expert, could those seven  
bolts be considered as even a contributing cause to  
that boiler failure?*

*"A. Absolutely not."*

In other words, as one witness affirms:

*From the appearance of the crown sheet, the  
boiler would have exploded if these broken stay-  
bolts discovered thereafter, had been intact prior  
to the explosion. (Rec. 16.)*

In addition to the testimony of these men (and it will be recalled that McGann had the opportunity of examining the bolts and engine shortly after the explosion) the circumstantial evidence with regard to the point where the boiler failure started absolutely excludes any theory or idea that these broken stay-bolts contributed in any way to this explosion. For example, McGann making an examination within three hours after the explosion occurred found on the crown sheet the peacock blue coloring, which in itself is conclusive evidence of the overheating of the crown sheet in the area thus colored. (Rec. 50.)

Joseph A. Boyden, witness for the plaintiff, also testifies that a blue area on the crown sheet indicates that the crown sheet has become exposed due to low water. The testimony of Karnell (Rec. 31), and Hedeman (Rec. 35) is to the same effect. The testimony of Hedeman (Rec. 35) and McGann (Rec. 50 *et seq.*) shows that the cause of the explosion was the low water and that the place of the tear and the condition of the bolts from which the crown sheet was separated by the force of the explosion and the relation of such bolts to the six broken stay-bolts conclusively establish that these broken bolts could not possibly have been involved in this boiler explosion.

We, therefore, submit that upon this record there is no more basis for the claim that these stay-bolts contributed to this boiler failure than, we suggest, that a broken bell clapper on the engine (if such were the fact) could be said to be proximately involved in an explosion of the locomotive boiler.

The error of the Court below in this regard is evidenced by its charge to the jury hereinbefore quoted.

We desire to point out that the error of the Court in submitting to the jury a question in support of which there is no evidence in the record was emphasized by the fact that not only did the Court submit this question of broken stay-bolts to the jury, but in connection with that submitted to the jury the question of whether or not the crown sheet of said boiler was "weak, defective, unsafe and leaky \* \* \* due to having previously been overheated" There is absolutely no evidence in the record that this crown sheet had been previously overheated.

We desire to suggest in this connection that the only testimony regarding any defective condition related solely to these stay-bolts and submit that aside from our position that there is no evidence to support the claim that the broken stay-bolts had any causal connection with the explosion, the necessary effect of the Court's instructions in regard to the condition of the engine was to connect with the matter of broken stay-bolts the claim of the plaintiff in regard to want of inspection and previous overheating of the crown sheet to support which no evidence was attempted to be introduced by the plaintiff.

#### C O N C L U S I O N .

Summarized, the entire evidence in this case leads to but one conclusion: *That Groeger, the engineer and therefore the one in charge and control of this engine and whose duty not only to the defendant but also to his fellow employes required that he properly use the adequate means at hand to properly operate the locomotive and maintain the proper height of water in the boiler, failed to do so and caused this disaster, resulting not*

*only in the loss of his own life but the lives of two fellow employes.*

The case is clearly within the rule laid down by this Court in *Great Northern Ry. vs. Wiles*, 240 U. S. 444, from which we quote as follows:

"Where there is nothing to extenuate the negligence of the employe, or to confuse his judgment, and his duty is as clear as its performance is easy, and he knows not only the imminent danger of the situation, but also how it can be averted by complying with the rules of the employer, there is no justification for a comparison of negligences on the part of the employer and employe or the apportioning of their effect under the provision of the Employers' Liability Act. To excuse such neglect on the part of an employe of an interstate carrier would not only cast immeasurable liability on the carriers but remove security from those carried."

We, therefore, submit that the judgment below should be reversed and a new trial granted.

Respectfully submitted,

S. H. TOLLES,

*Counsel for Petitioner.*

W. T. KINDER,

J. P. WOOD,

J. W. REAVIS,

*Of Counsel.*

In the Court of Common Pleas of the State of Ohio,

At the City of Columbus,

The Plaintiff and Otto Kallias Company,  
Petitioner,

From: George Johnson, Esq., of the Barre  
of John G. Frizzell, Esq., of the Barre  
*Report*

John G. Frizzell,  
Esq.  
Columbus, Ohio.

No. ....

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# In the Supreme Court of the United States

OCTOBER TERM, 1923.

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THE BALTIMORE AND OHIO RAILROAD COMPANY,  
*Petitioner,*

vs.

FREDA GROEGER, Administratrix of the Estate  
of John C. Groeger, Deceased,  
*Respondent.*

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## BRIEF OF RESPONDENT IN OPPOSITION TO PETITION FOR WRIT OF CERTIORARI.

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FRANK M. COBB AND  
E. C. CHAPMAN,  
*Attorneys for Respondent.*

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No. . . . .

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*Respondent.*

---

## BRIEF OF RESPONDENT IN OPPOSITION TO PETITION FOR WRIT OF CERTIORARI.

---

The respondent, Freda Groeger, administratrix, begs leave to submit the following brief in opposition to the petition and motion for writ of certiorari.

### FACTS.

The parties are designated herein as they stood in the District Court below, Freda Groeger, Administratrix, plaintiff, vs. The Baltimore & Ohio Railroad Company, defendant. The case is an action under the Federal Employers' Liability Act and the Federal Boiler Inspection Act, brought by plaintiff as administratrix of the estate of John C. Groeger, deceased, to recover damages for the alleged wrongful death of said Groeger, who was employed by defendant as a locomotive engineer.

Plaintiff's decedent on the morning of September 3, 1920, left Holloway, Ohio, acting as engineer of locomotive engine No. 2541 of the defendant with a train of cars for Brooklyn Junction, West Virginia, crossing the Ohio River near Wheeling and continuing by way of Moundsville, Chestnut Hill, Foster's Tower, through a point near Proctor (all in West Virginia), some three miles beyond Foster's Tower, where the locomotive boiler exploded, causing the death of the engineer, the fireman and the head brakeman,—all of the crew on board the engine at the time. After leaving Holloway the engine took on water at several points prior to the explosion, the last time being at Foster's Tower, about three miles from the scene of the explosion. Water from the tank of the engine was supplied to the boiler by means of the injectors on the engine. The engine when last seen just before reaching Foster's Tower and at Foster's Tower was being supplied with water by one or both injectors. (Record, pp. 15 and 32.) At a point near Proctor, while on a practically straight and level track, the boiler of the engine exploded. Admittedly, the engine was being used in interstate commerce and the law applicable to the case was governed by the Federal Employers' Liability Act and its amendments and the Boiler Inspection Act and its amendments, particularly the amendment of 1915, and by the orders of the Interstate Commerce Commission authorized under the Boiler Inspection Act. The Boiler Inspection Act provides as follows:

"An act to promote the safety of employees and travelers upon railroads by compelling common carriers engaged in interstate commerce to equip their locomotives with safe and suitable boilers and appurtenances thereto.

Section 1. The provisions of this act shall apply to any common carrier or carriers, their officers, agents, and employees, engaged in the transportation of passengers or property by railroad in the District of Columbia, or in any Territory of the United States, or from one State or Territory of the United States or the District of Columbia to any other State or Territory of the United States or the District of Columbia, or from any place in the United States to an adjacent foreign country, or from any place in the United States through a foreign country to any other place in the United States. The term 'railroad' as used in this act shall include all the roads in use by any common carrier operating a railroad, whether owned or operated under a contract, agreement, or lease, and the term 'employees' as used in this act shall be held to mean persons actually *engaged* in or *connected* with the movement of any train.

Sec. 2. From and after the first day of July, nineteen hundred and eleven, *it shall be unlawful* for any common carrier, its officers or agents, subject to this act to use any locomotive engine propelled by steam power in moving interstate or foreign traffic unless the boiler of said locomotive and appurtenances thereof are in *proper condition and safe to operate in the service to which the same is put, that the same may be employed in the active service of such carrier in moving traffic without unnecessary peril to life or limb*, and all boilers shall be inspected from time to time in accordance with the provisions of this act, and be able to withstand such test or tests as may be prescribed in the rules and regulations hereinafter provided for."

"Amendment of 1915 to Federal Boiler Inspection Act.

Sec. 1. That section two of the Act entitled 'An Act to promote the safety of employees and travelers upon railroads by compelling common carriers

engaged in interstate commerce to equip their locomotives with safe and suitable boilers and appurtenances thereto,' approved February seventeenth, nineteen hundred and eleven, shall apply to and include the *entire locomotive and tender and all parts and appurtenances thereof.*'"

By virtue of the law the Interstate Commerce Commission is authorized to make rules and orders which constituted part of the law. The use of a fusible plug is contemplated in some measure at least by reason of its rule or Order No. 14, which provides as follows:

"14. *Fusible plugs.*—If boilers are equipped with fusible plugs they shall be removed and cleaned of scale at least once every month. Their removal must be noted on the report of inspection."

Rule 25 provides as follows:

"25. *Broken staybolts.*—No boiler shall be allowed to remain in service when there are two adjacent staybolts broken or plugged in any part of the firebox or combustion chamber, nor when three or more are broken or plugged in a circle 4 feet in diameter nor when five or more are broken or plugged in the entire boiler."

The case of *Great Northern Railway Company vs. Donaldson*, 246 U. S. 121 (89 Wash. 161) was the case relied upon by the trial court; was the only case cited to the trial court by counsel; was the only case cited in the briefs of both parties in the United States Court of Appeals, and was the only case cited by the United States Court of Appeals in its opinion affirming this case. It is the contention of plaintiff that this case is controlling and governs the interpretation of all federal statutes involved in this case, and that it was followed by both the District Court and the Circuit Court of Appeals.

**CONDITION OF THE LOCOMOTIVE BOILER.**

(A) The locomotive boiler of defendant which exploded in this case was being operated in violation of the law in four different respects, seven broken bolts being found in the crown sheet of the boiler (Record, pp. 18, 19 and 39).

(B) The crown sheet above the fire-box was leaking at the front and side (Record, p. 32.)

(C). Plaintiff's decedent asked to give up this locomotive engine several miles ahead of where the explosion occurred, stating to the dispatcher that he was afraid of it, but was ordered to proceed with this locomotive. (Record, p. 36.)

(D) The engine was not equipped with a fusible plug, thereby rendering it unnecessarily dangerous to plaintiff's decedent and other employees engaged in its operation.

Admittedly, this engine at the time of the accident was being operated in violation of the law in four different respects, as governed by Rule 25 of the Interstate Commerce Commission; first, in that seven staybolts were broken in the crown sheet; second, two of these broken staybolts were adjacent; third, three of these bolts on the right side of the crown sheet were within a radius of eighteen inches, three on the left side within a radius of eight inches. (Record, pp. 18, 19 and 39.)

Defendant's Master Mechanic stated at the trial that if he had known of this condition of broken staybolts he would not have allowed the locomotive boiler to be used on that run, and, further, that an inspection of the locomotive boiler prior to its run on the day of the accident would have disclosed the broken condi-

tion of these bolts. (Record, pp. 18 and 19.) That this condition of broken staybolts described as above weakened the boiler of this locomotive is shown by the testimony of plaintiff's witness, Boyden. (Record, p. 25.)

Judge Donahue in his opinion, after deciding that this matter was one for the jury, stated as follows:

“Wholly apart from these broken staybolts there is sufficient evidence in this record as to the defective condition of this engine in other respects, to sustain the verdict of the jury.”

Defendant introduced expert testimony to the effect that the condition of these broken staybolts did not *weaken the boiler* or contribute to the explosion. This left the question one of fact to be submitted to the jury, which was done by the trial court. The question of weight of the evidence cannot properly be raised in this Court under motion for writ of certiorari.

The boiler of this locomotive at Foster's Tower, several miles ahead of the point where the boiler exploded, was found to be leaking at the front and the sides. (Record, p. 32,—plaintiff's witness, Bursee.) This is not denied by any witness for defendant.

At this point it is interesting to note the view which Judge Donahue of the United States Circuit Court of Appeals took of this evidence as noted in his opinion:

“It is claimed on behalf of the plaintiff in error that the explosion of this engine was caused by low water. *There is evidence in this record tending to prove that the boiler was in a leaking condition; that 'it was leaking up around the front and the side—the fire was dead and that when the door of the fire box was open the steam came out with a gush.'*”

There is also evidence tending to prove that the engine took water at Foster's Tower about three

miles from the place where it exploded; that water was supplied from the tank to the boiler by two injectors and that at Foster's Tower both of these injectors were working. *If it were conceded that low water caused this explosion, the natural inference from this evidence would be that the engine was in such a defective and leaky condition that water could not be supplied fast enough by these two injectors to keep the crown sheet covered, although it appears from the testimony of the railroad company's master mechanic that with one injector working, the water would be kept above the crown sheet in the normal operation of the locomotive.* The evidence also tends to prove the defendant was fully advised of the defective condition of this engine. When the train was at Moundsville, Groeger, the engineer, notified the defendant's train dispatcher that he was afraid of this engine and asked to be relieved of it, but the dispatcher ordered him to continue its use."

Also in this connection the record shows that both injectors were working and supplying water to this boiler at Foster's Tower just shortly before the explosion, which is not denied in the record, although defendant continually claims that the explosion of this boiler was due to low water by reason of the negligence of the engineer.

Further, the opinion of Judge Donahue is quoted on the question as to any negligent operation by the engineer.

"The presumption obtains that Groeger was exercising due care for his own safety. This presumption is strengthened by the evidence that he knew the engine was in such a defective condition that he was afraid of it and asked to be relieved from using it. *There is no direct evidence in this record that he was negligent in any respect. Nor does the infer-*

*ence that he was negligent necessarily follow from the facts admitted or proven in this case.* It was, therefore, a question for the jury to determine whether this explosion was caused by the manner in which it was operated or by its defective condition in one or more of the particulars in which the evidence tends to show it was defective."

Plaintiff's decedent at Moundsville, some distance ahead of the explosion of the locomotive, asked defendant's dispatcher to be allowed to give up the engine at that point, asserting that he was afraid of it, but by defendant's dispatcher was ordered to continue with this engine. (Record, p. 36.) This testimony was developed by the cross-examination by defendant of plaintiff's witness and was taken by deposition some months before the trial of the case in the District Court, yet no contradiction of this testimony was offered by the defendant.

The use of fusible plugs in the boiler of a locomotive has been well known for a matter of many years, and they are an absolute prevention of the explosion of the locomotive boiler through overheating of the crown sheet or low water. (Record, pp. 23 and 26.)

Plaintiff's witness, Boyden, actively in charge of many engines for a number of years, with a great amount of practical experience with locomotives equipped with fusible plugs, testified as follows: (Record, p. 23)

"In railroad talk, a fusible plug is known as a soft plug. It is put into the highest point of the crown sheet, that is, the top of the inside of the firebox. There is a soft metal applied to this brass plug so that if the water gets low this metal will melt. It is used as an alarm or a safety device to the engineer to know that his water is low in his

boiler. When the fusible plug operates, it relieves the pressure between the fire-box sheet and the outside wrapper sheet, so that a boiler cannot blow up.

I saw those fusible plugs in operation, directly, seven years that I was master mechanic. I used them on 178 engines on the Erie Railroad, during the period from 1912 to 1919. During that time I never had a boiler to blow up, due to the safety plug. We have had plugs give out on the railroad due to poor workmanship in the applying of the soft metal in the plugs. I have never recalled of an engineer or fireman being injured due to this. I have heard there was a case, but I have never seen it."

Defendant's claim against the use of the fusible plug was that scale would accumulate over it in the ordinary operation of the boiler and that this scale prevented the functioning of the plug, and that at times the plug melted out and allowed an escape of steam pressure from the boiler, which unfitted the engine for service for hours thereafter. Against this claim Boyden testified that the formation of scale on fusible plugs could be prevented as follows (Record, p. 26) :

"On the railroad I was on, to prevent the formation of scale on the fusible plugs used in the locomotives, we filled these plugs with a soft metal and then made them in a crown shape, put them in a lathe and crowned them so that everything would slide, the scale would slide off from them. That prevented the formation of scale within the boiler on that plug."

Defendant's Master Mechanic, McGann, admitted this contention of plaintiff. (Record, p. 23.)

"Drawing that soft metal to a point would tend to prevent the formation of the deposit on that soft plug."

The Record embraces several pages of testimony from defendant's witness, W. C. Hedeman, who testified that a fusible plug was not practical, but he admitted that he had never seen a fusible plug in the crown sheet of a locomotive and had had no practical experience. (Record, p. 47.)

"I have not seen a fusible plug in use on the boiler of a locomotive engine."

Admittedly, in the practical operation of an engine, the pipes conducting water from the boiler to the sight glass feed and the gauge cocks may become obstructed by scale and thus render both the sight glass feed and the gauge cocks inoperative. This makes the need of the fusible plug in the boiler of a locomotive apparent. Under Section 2 of the Boiler Inspection Act any unnecessarily dangerous condition in a locomotive boiler is a violation of the Act, and the duty to prevent unnecessary dangers is absolute under that Act.

Defendant's expert witness, Karnell, (Record, p. 42) testified as follows regarding fusible plugs:

"In actual operation, a fusible plug placed at that point on the crown sheet, projecting above the crown sheet, as soon as the water got down to the fusible plug and laid bare the top of that fusible plug, the soft metal in that plug would melt and allow the escape of all pressure from that boiler, and in that way would prevent any burning or overheating of that crown sheet."

In this connection the opinion of Judge Donahue of the United States Circuit Court of Appeals is as follows:

"There is, however, substantial evidence in this regard tending to prove that fusible plugs are extensively used; that they may be rounded at the top,

so that the scale will not accumulate thereon; that they are generally recognized as effective and reliable means for preventing boiler explosions from low water and that if this engine had been equipped with a fusible plug this explosion would not have occurred, regardless of the other claimed defects. Upon this state of the proof, it was the duty of the court to submit this issue to the jury. This court has no authority to consider or determine the question of the weight of the evidence."

Admittedly, the Interstate Commerce Commission has made no definite rule either requiring or disapproving the use of fusible plugs in locomotive boilers. Rule 14 of the Interstate Commerce Commission, with reference to fusible plugs, provides as follows:

"If boilers are equipped with fusible plugs they shall be removed and cleaned of scale at least once every month. Their removal must be noted on the report of inspection."

The case of *Donaldson vs. Great Northern Railway Company*, 89 Wash. 161 (affirmed 246 U. S. 121), deals with the explosion of a locomotive boiler. The State Court held as follows on the question of fusible plug, which was raised in this case: That it was for the jury to say whether from the evidence the use of fusible plugs was a means of preventing the explosion of the boiler. (89 Wash. 165.)

The second paragraph of the syllabus in this case provides as follows:

"In an action for the death of an engineer through the explosion of a locomotive boiler it is for the jury to determine whether the railroad company was guilty of negligence in converting a coal burning locomotive into an oil burner without changing buttonhead bolts or using fusible plugs and as to the presence or absence of scale on the

crown sheet, when there was evidence that button-head bolts had a tendency to become overheated by an oil flame and taper heads were used on oil burners and that fusible plugs were a means of preventing explosions."

This case was affirmed by the Supreme Court, 246 U. S. 121. The case arose and was tried under the Boiler Inspection Act without the benefit of the Amendment of 1915 heretofore quoted, under which this case arose. In the *Donaldson* case claim was made of defective staybolts heads in the boiler, which it was claimed became overheated, allowing the explosion of the boiler. That type of construction in the *Donaldson* case was not prohibited in any way by the Boiler Inspection Act, and certainly had not been disapproved by the Federal Inspectors, the inference being that that type of construction was approved, and it was claimed by the defendant that because that type of construction was approved, or at least had not been disapproved by the Federal Inspector, was conclusive evidence of no negligence in its use. On this question, Judge Day in his opinion says:

"We find nothing in the Boiler Inspection Act to warrant the conclusion that there is no liability for an unsafe locomotive, in view of the provisions of section 2 of the act, because some particular feature of construction, which has been found unsafe, has not been disapproved by the federal boiler inspector."

In other words, plaintiff herein insists that the ideas of the Federal Inspectors are not conclusive or binding and not a defense in an action where evidence is introduced that the boiler was unsafe in the service to which it was put.

In the *Donaldson* case, failure to install a fusible plug in the locomotive was charged.

**CONCLUSION.**

Plaintiff therefore submits that the question of the interpretation of federal statutes involved in this case has been fully decided by this Court in the case of *Great Northern Railway Company vs. Donaldson*, 246 U. S. 121, and that its ruling was followed by the trial court and the Circuit Court of Appeals in this case, and that, therefore, the petition and motion for writ of certiorari should be denied.

Respectfully submitted,

**FRANK M. COBB AND  
E. C. CHAPMAN,**

*Attorneys for Respondent.*



**In the Supreme Court of the Commonwealth**

**The BAZEMORE AND O'NEIL INSURANCE COMPANY,**

**Petitioner,**

**vs.**

**FREDA GOODMAN, Administrator of the Estate of  
John C. Goodman, Deceased,**

**Respondent.**

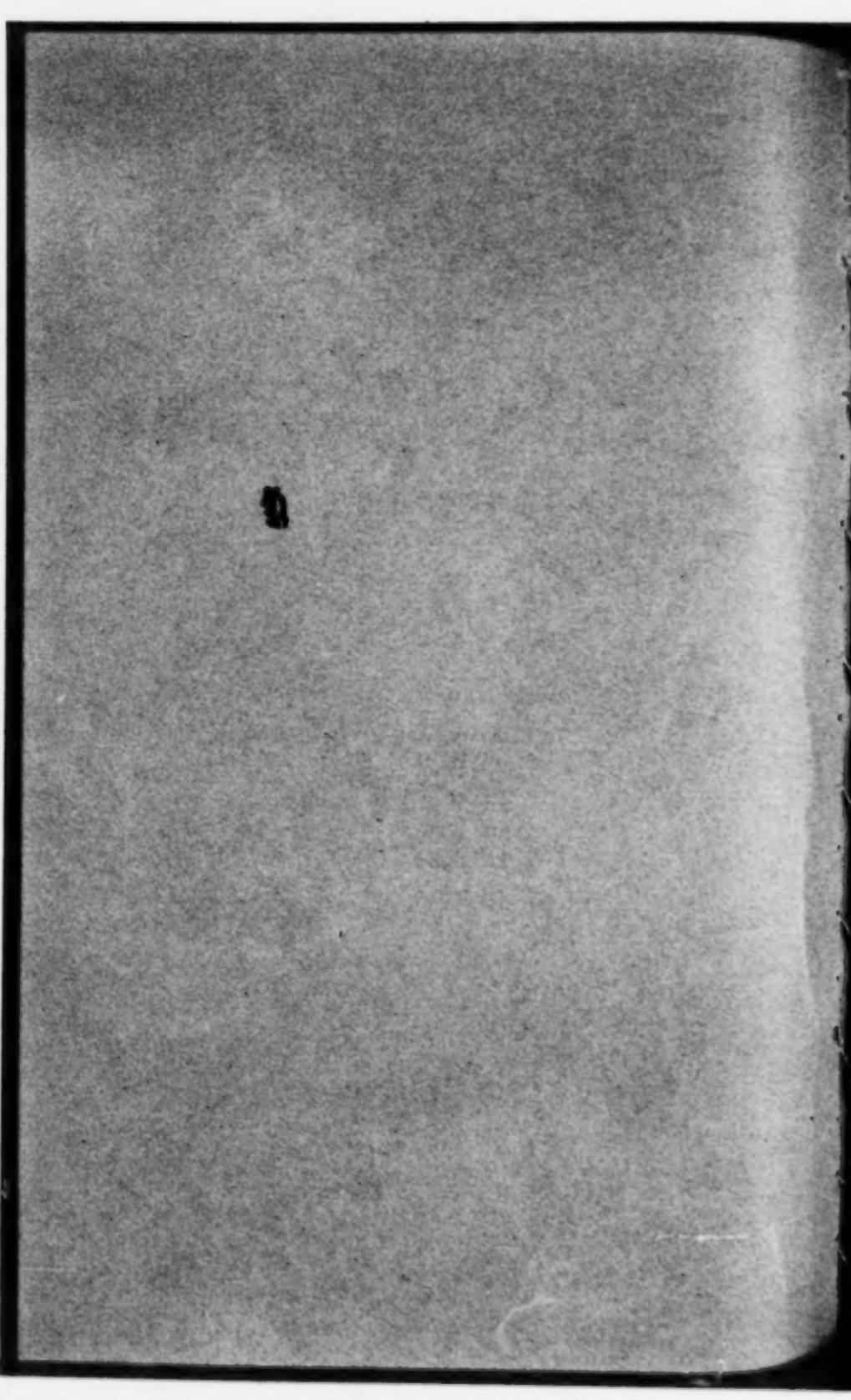
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**BRIEF ON APPEAL FOR CERTIORARI  
ADMITTED, APRIL 1, 1937.**

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**E. G. CHAMBERS,  
Attorney for Respondent.**

*[Handwritten signature]*



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No. 113

# In the Supreme Court of the United States

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THE BALTIMORE AND OHIO RAILROAD COMPANY,  
*Petitioner,*

VS.

FREDA GROEGER, ADMINISTRATRIX OF THE ESTATE OF  
JOHN C. GROEGER, DECEASED,  
*Respondent.*

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## BRIEF ON BEHALF OF FREDA GROEGER, ADMINISTRATRIX, RESPONDENT.

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### STATEMENT OF FACTS.

The parties are designated herein as they stood in the trial court, to wit, *Freda Groeger, Administratrix, Plaintiff, vs. The Baltimore and Ohio Railroad Company, Defendant.*

The action was brought under benefit of the Federal Employers' Liability Act and the Locomotive Boiler Inspection Act by Freda Groeger, Administratrix of the Estate of John C. Groeger, to recover damages for the alleged wrongful death of said Groeger, who was employed by the Company as a locomotive engineer.

Early on the morning of September 3, 1920, Groeger left Holloway, Ohio, as engineer of locomotive No. 2541 of the defendant, with a string of cars for Brooklyn Junction, West Virginia, crossing the Ohio River near Wheeling, and continuing through Moundsville, Chestnut Hill, Foster's Tower, and to a point near Proctor, West

Virginia. At a point near Proctor, West Virginia, some three miles beyond Foster's Tower, the boiler of the locomotive exploded with great violence, causing the death of all employees on the locomotive and hurling the superstructure of the engine hundreds of feet away from the point of the explosion. Admittedly, both parties to this action were engaged in interstate commerce at the time it occurred, and the case is governed by the Federal Employers' Liability Act and the Locomotive Boiler Inspection Act and their amendments.

The locomotive boiler when last seen prior to the disaster was being supplied with water by both injectors on the engine, which constituted the only manner of supplying water to the boiler. This testimony is not disputed by defendant.

**THE LOCOMOTIVE BOILER INVOLVED IN THIS ACCIDENT WAS BEING OPERATED IN VIOLATION OF THE LAW AND IN AN UNSAFE AND UNNECESSARILY DANGEROUS CONDITION IN FOUR DIFFERENT RESPECTS, AS DISCLOSED BY THE RECORD.**

(A) The locomotive was being operated in violation of Rule 25, approved by the Interstate Commerce Commission, in four different respects, in that seven broken bolts in the crown sheet were broken before the locomotive started on the trip. (Record, pages 13, 14 and 29.)

(B) The crown sheet of the locomotive was leaking up around the front and the side, at which points the fire was dead. (Record, p. 24.)

(C) Plaintiff's decedent asked to give up this locomotive several miles ahead of the point where the explosion occurred, stating to the dispatcher of defendant that

he was afraid of it, but by the dispatcher was ordered to proceed with the locomotive. (Record, p. 27.)

(D) The locomotive boiler was not equipped with a fusible plug, which rendered it unnecessarily dangerous to the employees engaged in its operation.

(A) Rule No. 25, approved by the Interstate Commerce Commission, provided as follows:

“25. *Broken staybolts*—No boiler shall be allowed to remain in service when there are two adjacent staybolts broken or plugged in any part of the firebox or combustion chamber, nor when three or more are broken or plugged in a circle 4 feet in diameter, nor when five or more are broken or plugged in the entire boiler.”

Admittedly, Rule 25 under this law was violated in four different respects by the defendant in the operation of this boiler on the day that it exploded, and defendant's master mechanic frankly admitted at the trial that if he had known of the condition of the boiler he would not have allowed it to be operated on that run the day the explosion occurred. (See testimony of Master Mechanic McGann, Record, pp. 13, 14 and 29.)

“I was Master Mechanic on the day of the accident to Mr. John Groeger on engine 2541. When I got notice of the accident I was in front of the Y. M. C. A. Building at Benwood. I went to the scene of the accident immediately after receiving notice and made an inspection of the boiler and engine. I was notified about twelve-ten or twelve-fifteen p. m., and arrived at the scene of the accident, as near as I can judge, about 2:40 p. m. I made an inspection of the fire-box, but we are prevented from making further inspection, according to the Interstate Commerce Rules, so we made observations as to the firebox and condition of the boiler.

We found six intermediate stays and one stay bolt at the forward part of the crown sheet, broken. There were two adjacent broken bolts on the left side, if I remember correctly. I haven't my records with me. There were three broken stays on the left side and three on the right side, intermediate stays, and the three on the right side were in a radius of, I would say, sixteen inches, and the two adjacent, on the left side, were within eight inches. The third one was within twelve inches of the other two—one was skipped and another bolt broken. The broken crown bolt was in the fifth row from the flue sheet. None of those broken bolts had telltale holes in them." (Record, p. 13.)

"Q. My question was, would you have allowed this engine to make that run from Holloway to Brooklyn Junction on that day if you had known those bolts were broken within that boiler?

Mr. Kinder: Same objection.

The Court: Overruled.

Mr. Kinder: Exception.

A. No, sir." (Record, p. 14.)

"As to the broken stay bolts which I found on my investigation of this boiler, an inspection of that boiler prior to the explosion would have disclosed the broken condition of those stay bolts.

If I had known that on one side of that firebox three of those broken intermediate or radial bolts were within a circle of eight inches, as I testified, I would not have allowed that boiler and locomotive in service that day. If I had known that two of those bolts broken were adjacent, I would not have allowed that boiler in the service to which it was put that day." (Record, p. 29.)

Admittedly, seven bolts were broken throughout the boiler of this engine, which, under the Boiler Inspection Act, made it unlawful to be operated. Two of these

broken bolts were adjacent, which fact alone made it unlawful to operate the boiler. Three of these bolts were on the right side of the boiler within a radius of eighteen inches,—another violation,—and there were on the left side of the boiler in a radius of eight inches,—another violation,—making four conditions in the boiler each one of which was sufficient to prohibit under the law the operation of the boiler on the day of the accident. That all of these conditions existed prior to the day the boiler was operated and would have been disclosed by an inspection is borne out by the testimony in the Record, pp. 13, 14 and 29. That the broken bolts described, which existed prior to the explosion, weakened this boiler, is shown by the testimony of Boyden (Record, p. 18), who had had years of practical experience with locomotive boilers and with fusible plugs.

“Assuming that there were three broken intermediate bolts in an eight-inch circle on one side, and three on the other in an eighteen-inch circle, two of them adjacent, and one crown bolt was broken,—it is bound to weaken the boiler at that point. The fact two of those broken bolts were adjacent, distributes the load over to the next bolts, which have to carry the loads of the broken ones.”

Defendant admitted all of these violations, but offered evidence to the effect that such broken bolts were not a contributing cause to the explosion. Plaintiff submits from this Record that this left the question one of fact to be submitted to the jury, which the trial court did in very clear and concise language, strongly emphasizing to the jury that this condition of broken bolts must be found to be the sole cause, or one of the causes, but for the existence of which the explosion would not have taken place. (See Record, p. 59.)

"Even if it should be proved that that requirement of the law was violated, the plaintiff would not be entitled to recover by reason of such violation unless you should further find from a preponderance of the evidence that this specific violation, these specific defects, was either the sole or one of the causes but for the existence of which the explosion would not have taken place. If the existence of these broken stay-bolts had nothing to do with causing the explosion, then you should disregard their existence because, as I say to you, the negligent or wrongful conduct which you may find by a preponderance of the evidence the defendant is guilty of, must have been either the sole or one of the proximate causes of the explosion and of the resultant death of plaintiff's decedent."

The existence of the broken bolts was explained in the testimony of plaintiff's witness, Boyden, namely, that this could be caused by previous overheating of the crown sheet. (Record, p. 19.)

*H* "The overheating of a crown sheet has a tendency to draw or pull or strip threads of the bolts and crack them."

And this is not denied on behalf of defendant by any witness.

The Federal Boiler Inspection Act was enacted for the safety of employees and should be liberally construed. Its scope has been enlarged since its enactment, particularly by the Amendment of 1915 making the Act applicable to the entire locomotive, tender and all parts and appurtenances thereof. It has evidently been the purpose and intent of Congress to enlarge its application and scope of operation.

(B) Testimony of plaintiff's witness, Bursee. (Record, p. 24.)

"When I was on the engine both injectors were working. I heard them working. If they had not been working steam would not have been coming out of the bottom, or they would kick off. Both of these injectors were working.

While on the engine I saw the firebox door open and I noticed it was leaking up around the front, and the side—the fire was dead. You could hear the sizzling of the water hitting on the fire. When I opened the door steam came out of the firebox. With the door open there was a gush came."

This testimony is that of the last witness to have seen the condition of this locomotive boiler prior to the accident who was not killed in the explosion. He was an employee of defendant on a train bound in the opposite direction, which met the decedent's train at Foster's Tower. His testimony was taken by deposition some months prior to the trial of this case, yet at the trial defendant offered no evidence in any way disputing this testimony and accounted in no way for the absence of the dispatcher, of whom Groeger had asked permission to give up his engine.

(C) A link-hanger on this engine was broken prior to reaching Moundsville, and difficulty encountered in getting up steam. The record shows that the engineer asked the dispatcher to allow him to give up this engine, stating to the dispatcher that he was afraid of it, but the dispatcher ordered him to continue with it. (Record, p. 27.)

(D) The record shows the fusible plug, also known as the fusible safety plug, was a device going into the highest part of the crown sheet, which would prevent the explosion of the locomotive boiler due to the overheating of the crown sheet. It also shows that the de-

vice was practical, had been in use for a good many years. (Record, pp. 17 and 18.) The use of these plugs in the locomotive engine would prevent the explosion of the boiler from overheating of the crown sheet. Some of this testimony is quoted herewith. (Record, p. 32, defendant's witness, Karnell.)

"In actual operation, a fusible plug placed at that point on the crown sheet, projecting above the crown sheet, as soon as the water got down to the fusible plug and laid bare the top of that fusible plug, the soft metal in that plug would melt and allow the escape of all pressure from that boiler, and in that way would prevent any burning or overheating of that crown sheet."

Plaintiff's witness, Boyden, actively in charge of many engines for a number of years, with a great amount of practical experience with locomotives equipped with fusible plugs, testified as follows (Record, p. 17):

"In railroad talk, a fusible plug is known as a soft plug. It is put into the highest point of the crown sheet, that is, the top of the inside of the fire-box. There is a soft metal applied to this brass plug so that if the water gets low this metal will melt. It is used as an alarm or a safety device to the engineer to know that his water is low in his boiler. When the fusible plug operates, it relieves the pressure between the fire-box sheet and the outside wrapper sheet, so that a boiler cannot blow up.

I saw those fusible plugs in operation, directly, seven years that I was master mechanic. I used them on 178 engines on the Erie Railroad, during the period from 1912 to 1919. During that time I never had a boiler blow up, due to the safety plug. We have had plugs give out on the railroad due to poor workmanship in the applying of the soft metal in the plugs. I have never recalled of an engineer

or fireman being injured due to this. I have heard there was a case, but I have never seen it."

Defendant's claim against the use of the fusible plug was that scale would accumulate over it in the ordinary operation of the boiler and that this scale prevented the functioning of the plug, and that at times the plug melted out and allowed an escape of steam pressure from the boiler, which unfitted the engine for service for hours thereafter. Against this claim Boyden testified that the formation of scale on fusible plugs could be prevented as follows (Record, p. 19):

"On the railroad I was on, to prevent the formation of scale on the fusible plugs used in the locomotives, we filled these plugs with a soft metal and then made them in a crown shape, put them in a lathe and crowned them so that everything would slide, the scale would slide off from them. That prevented the formation of scale within the boiler on that plug."

Defendant's Master Mechanic, McGann, admitted this contention of plaintiff. (Record, p. 16.)

"Drawing that soft metal to a point would tend to prevent the formation of the deposit on that soft plug."

The record embraces several pages of testimony from defendant's witness, W. C. Hedeman, who testified that a fusible plug was not practical, but he admitted that he had never seen a fusible plug in the crown sheet of a locomotive and had had no practical experience. (Record, p. 36.)

"I have not seen a fusible plug in use on the boiler of a locomotive engine." (Record, p. 36.)

This witness admits that, "theoretically," the broken bolts found in the boiler would reduce the strength of

the boiler for internal resistance, but maintains that this condition of reduced resistance did not contribute to the boiler explosion. (Record, pp. 37 and 38.)

"Theoretically, the broken crown bolt which I have marked as being broken, would reduce the strength of that boiler for internal resistance. As this particular point where these bolts are broken is the strongest part of this firebox, crown or stay sheets, for this reason: that it is on what is known as the radius. A man doesn't have to be a mechanic to know that a sheet bent like this will stand more pressure than a flat sheet. That is why I say theoretically only it reduces the strength because it is in the strongest part of the firebox." (Record, p. 38.)

The use of a fusible plug is contemplated in some measure at least by the Interstate Commerce Commission by reason of its rule or Order No. 14, which provides as follows:

"14. *Fusible plugs.*—If boilers are equipped with fusible plugs they shall be removed and cleaned of scale at least once every month. Their removal must be noted on the report of inspection."

Defendant would seem to claim that the failure to install or use a fusible plug in a locomotive in interstate commerce is not a violation of the Boiler Inspection Act for the reason that it is not specifically required by the Interstate Commerce Commission through its authority under the Act, and that the use of an engine without it is approved, or at least not disapproved, by the Commission.

Plaintiff submits from the foregoing testimony that the question of fusible plug in this case becomes one for the jury under the instructions of the court, it being a question of fact as to whether or not the danger of the

explosion of a boiler solely due or contributed to by an overheated crown sheet can be absolutely prevented by the use of a fusible plug. In other words, the record would seem to clearly show that the risk of boiler explosions through overheated crown sheets in the practical operation of a locomotive is absolutely *unnecessary*, for the reason that a fusible plug will absolutely prevent this, as has heretofore been shown by the testimony of practical men called both by plaintiff and defendant. The record clearly shows the further need for the fusible plug in the locomotive, by reason of the fact that the gauge cocks and sight glass feed may become obstructed by the formation of scale therein in the practical operation of the boiler, and the height of the water in the boiler would not be disclosed by these appliances.

Quoting from the testimony of defendant's Master Mechanic, McGann (Record, p. 14):

"In the operation of the boiler there is a deposit within the boiler of scale or sediment from the water. That obstructs, at times, both the gauge cocks and the water glass on the boiler. I might add that they are required to remove them monthly and clean the same. If allowed to continue they will accumulate with dirt and scale and obstruct the proper reading. In my experience as Master Mechanic I have seen that condition arise where those things became obstructed."

Joseph A. Boyden, for many years Master Mechanic of the Erie Railroad, in charge of a number of locomotives, testified as follows (Record, p. 18):

"Gauge cocks can become obstructed by scale formation in the boilers. If you wash your boiler often enough that can be prevented. I wouldn't say the scale forms in the gauge cock pipes the same as the rest of the boiler, because in opening your gauge

cocks the pressure is so great you constantly blow them out. When they would become obstructed you couldn't use the gauge cocks, nothing would come out; it would be simply plugging it up."

That the sight glass feed on this locomotive was very unsteady, was continually fluctuating a short time prior to the explosion, was shown by testimony of defendant's conductor, Bethel, (Record, p. 11) and by witness, Bursee, (Record, p. 24):

"On my trip in that engine I observed the water glass gauge. The water boiled, or something—went up in it and then down. I don't know how far up the water went in the gauge. It went down out of sight. I just saw it do that the one time between Chestnut Hill and Foster. I don't think I rode the engine from Foster Tower up to Wells Pit. After I saw that sight glass going up and down, I don't remember that I observed it again before leaving the engine." (Record, p. 11.)

"The water was going up and down in the water glass, not fast and not slow. When it went down it would disappear, about to the bottom. It would not disappear; just about to the bottom." (Record, p. 24.)

That this could be due to impurities in the water is shown by the testimony of Boyden (Record, p. 18):

"The falling and rising of water in the sight glass feed tube to practically the extent of the water glass is due to foaming in the boiler, which may be due from alkali or soda that would get into your boiler. A low stage of water in the boiler would not cause it to rise and fall. It would have to be a matter of foaming from one of the causes I mentioned or something else."

When the water in the boiler is foaming, if the engineer happens to be trying his gauge cocks, when

the water is dropping it will show him no water; if he happens to be trying the gauge cocks when the water is rising it will show he has got water. It affects the apparent height as indicated in the water glass; it raises and lowers it." (Record, p. 18.)

### THE STATUTES INVOLVED.

These statutes are constitutional and enforceable and sufficiently defined, and their construction by the trial court has been approved by this Court. Under this heading the first two assignments of error, (a) and (b), of the petitioner are discussed.

Admittedly the federal statutes involved herein are what is known as the Federal Employers' Liability Act, the various Safety Appliance Acts, including the Locomotive Boiler Inspection Act. All of these statutes are remedial statutes, enacted for the safety of employees and the travelling public to supplant the old rules of the common law. By reason of the great development of steam and electric power greatly facilitating the manufacture of various commodities and the transportation of various commodities, dangers incident to employees in these lines were greatly increased and remedial statutes were enacted by practically all of the states as well as by the United States. Pertinent portions of the Federal Employers' Liability Act are quoted here-with as follows:

*"The Federal Employers' Liability Act of 1908  
as Amended. An Act Relating to the liability of  
common carriers by railroad to their employes in  
certain cases.*

*Be it enacted by the Senate and House of  
Representatives of the United States of America in  
Congress assembled.*

Section 1. Every common carrier by railroad while engaging in commerce between any of the several States or Territories, or between any of the States and Territories, or between the District of Columbia and any of the States or Territories, or between the District of Columbia or any of the States or Territories and any foreign nation or nations, shall be liable in damages to any person suffering injury while he is employed by such carrier in such commerce, or, in case of the death of such employe, to his or her personal representative, for the benefit of the surviving widow or husband and children of such employe; and, if none, then of such employe's parents; and, if none, then of the next of kin dependent upon such employe, for such injury or death resulting in whole or in part from the negligence of any of the officers, agents, or employes of such carrier, or by reason of any defect or insufficiency, due to its negligence, in its cars, engines, appliances, machinery, track, roadbed, works, boats, wharves or other equipment.

\* \* \* \* \*

Sec. 4. In any action brought against any common carrier under or by virtue of any of the provisions of this act to recover damages for injuries to, or the death of, any of its employes, such employe shall not be held to have assumed the risks of his employment in any case where the violation by such common carrier of any statute enacted for the safety of employes contributed to the injury or death of such employe."

The Federal Safety Appliance Act, relating to the couplers, brakes, etc., is not quoted, being not involved in this discussion.

*"The Federal Boiler Inspection Act.*

An act to promote the safety of employees and travelers upon railroads by compelling common carriers engaged in interstate commerce to equip their locomotives with safe and suitable boilers and appurtenances thereto.

Section 1. The provisions of this act shall apply to any common carrier or carriers, their officers, agents, and employes, engaged in the transportation of passengers or property by railroad in the District of Columbia, or in any Territory of the United States, or from one State or Territory of the United States or the District of Columbia to any other State or Territory of the United States or the District of Columbia, or from any place in the United States to an adjacent foreign country, or from any place in the United States through a foreign country to any other place in the United States. The term 'railroad' as used in this act shall include all the roads in use by any common carrier operating a railroad, whether owned or operated under a contract, agreement, or lease, and the term '*employes*' as used in this act shall be held to mean persons actually *engaged* in or *connected* with the movement of any train.

Sec. 2. From and after the first day of July, nineteen hundred and eleven, *it shall be unlawful* for any common carrier, its officers or agents, subject to this act to use any locomotive engine propelled by steam power in moving interstate or foreign traffic unless the boiler of said locomotive and appurtenances thereof are in *proper condition* and *safe to operate in the service to which the same is put*, that the same may be employed in the active service of such carrier in moving traffic without unnecessary peril to life or limb, and all boilers shall be inspected from time to time in accordance with the provisions of this act, and be able to withstand

such test or tests as may be prescribed in the rules and regulations hereinafter provided for."

*"Amendment of 1915 to Federal Boiler Inspection Act.*

Sec. 1. That section two of the Act entitled 'An Act to promote the safety of employees and travelers upon railroads by compelling common carriers engaged in interstate commerce to equip their locomotives with safe and suitable boilers and appurtenances thereto,' approved February seventeenth, nineteen hundred and eleven, shall apply to and include *the entire locomotive and tender and all parts and appurtenances thereof.*'"

*"It is ordered,* That said rules and instructions for the inspection and testing of locomotive boilers, and their appurtenances, as follows, be, and the same are hereby, approved, and from and after the 1st day of July, 1911, shall be observed by each and every common carrier subject to the provisions of the act of Congress aforesaid as the minimum requirements: *Provided,* That nothing herein contained shall be construed as prohibiting any carrier from enforcing additional rules and instructions not inconsistent with the foregoing, tending to a greater degree of precaution against accidents."

**"RESPONSIBILITY FOR THE GENERAL CONSTRUCTION  
AND SAFE WORKING PRESSURE.**

1. The railroad company will be held responsible for the general design and construction of the locomotive boilers under its control. \* \* \*

**"INSPECTION OF INTERIOR OF BOILER.**

\* \* \* \* \*

14. *Fusible plugs.*—If boilers are equipped with fusible plugs they shall be removed and cleaned of scale at least once every month. Their removal must be noted on the report of inspection."

The Federal Employers' Liability Act of 1908 and its amendments have been declared constitutional and valid by this Court in 223 U. S., p. 1, *Mondou vs. various Railroad Companies*. The constitutionality of the Safety Appliance Acts with the exception of the Locomotive Boiler Inspection Act has been declared by this Court in the case of *Southern Railway Company vs. United States*, 222 U. S. p. 20. Remedial statutes similar to these federal statutes have been liberally construed by courts of all jurisdictions, as have the federal statutes involved here by this Court. In the interpretation and construction of these statutes three points seem to have been considered: First, the old law, the mischief and the remedy, in the light of the common law at the making of the act; second, what was the mischief which the common law permitted; third, the remedy the Legislature has provided to cure the mischief. The duty of the courts in the construction of these statutes is to suppress the mischief and advance the remedy. Many of these statutes provide for inspectors to promote the safety of employees for whom they were enacted. This Court has liberally construed remedial statutes in the following cases:

- 220 U. S. 580, *Delk vs. Railroad Company*;
- 239 U. S. 349, *Railroad Company vs. Otos*;
- 239 U. S. 556, *Shanks vs. Railroad Company*;
- 241 U. S. 33, *Railway Company vs. Rigsby*;
- 243 U. S. 617, *Railroad Company vs. Layton*;
- 24 U. S. 66, *Railroad Company vs. Gotschall, Admrx.*;
- 246 U. S. 121, *Railway Company vs. Donaldson*.

Similar remedial statutes in the various States of the Union, being entitled "Acts to Promote the Safety

and Health of Employees," and seeming to provide a general rule of conduct covering "safe" place to work, "reasonable" guarding of machinery and "practical" guarding of dangerous machinery, have been reviewed by this Court. One of these cases is that of *Miller vs. Strahl*, 239 U. S., p. 426. In this case a Nebraska statute known as Section 3104 of the Revised Statutes of the State, 1913, provided as follows:

"In hotels or lodging houses containing more than fifty rooms, and being four or more stories high, the proprietor or lessee of each hotel or lodging house shall employ and keep at least one competent watchman, whose duty it shall be to keep watch and guard in such hotel or lodging house against fire and to give warning in case a fire should break out. Such watchman shall be on duty between the hours of 9 o'clock P. M. and 6 o'clock A. M., and in case of fire he shall instantly awaken each guest and all other persons therein, and inform them of such fire. A large alarm bell or gong shall be placed on each floor or story, to be used to alarm the inmates of such hotel or lodging house in case of fire therein. It shall be the duty of every proprietor, or keeper of such hotel or lodging house, in case of fire therein to give notice of same to all guests and inmates thereof at once and to do all in their power to save such guests and inmates."

This statute was reviewed by this Court and attacked on the grounds that it contravenes the Constitution of the State of Nebraska and also the Constitution of the United States. The question as to uncertainty as to the rule of conduct, together with the indefinite rule laid down by the statute, was seriously attacked. This Court sustained the statute, and the opinion of Justice McKenna in part is quoted herewith:

“Plaintiff in error contends further that the statute ‘is lacking in due process of law’ because ‘it fails to prescribe any fixed rule of conduct.’ The argument is that the requirement ‘to do all in one’s power’ fails to inform a man of ordinary intelligence what he must or must not do under given circumstances.

Rules of conduct must necessarily be expressed in general terms and depend for their application upon circumstances, and circumstances vary. It may be true, as counsel says, that ‘men are differently constituted,’ some being ‘abject cowards, and few only are real heroes’; that the brains of some people work ‘rapidly and normally in the face of danger while other people lose all control over their actions.’ It is manifest that rules could not be prescribed to meet these varying qualities. Yet all must be brought to judgment. And what better test could be devised than the doing of ‘all in one’s power’ as determined by the circumstances?

The case falls, therefore, under the rule of *Nash v. United States*, 229 U. S. 373, 57 L. ed. 1232, 33 Sup. Ct. Rep. 780, and not under the rule of *International Harvester Co. v. Kentucky*, 234 U. S. 216, 58 L. ed. 1284, 34 Sup. Ct. Rep. 853.”

A remedial statute of the State of Kansas was also reviewed by this Court in the case of *Bowersock vs. Smith, Administratrix*, 243 U. S. 29. This statute is entitled and provides as follows:

“An Act Requiring Safeguards for the Protection of All Persons Employed or Laboring in Manufacturing Establishments, and Providing Civil Remedies for All Persons So Engaged, or Their Personal Representatives, in Cases Where any such Person May Be Killed or Injured While Employed or Laboring in Any Manufacturing Establishment Which Is Not Properly Provided with the Safeguards Required by This Act.

Sec. 4. All \* \* \* machinery of every description used in a manufacturing establishment shall, where practicable, be properly and safely guarded, for the purpose of preventing or avoiding the death of or injury to the persons employed or laboring in any such establishment; and it is hereby made the duty of all persons owning or operating manufacturing establishments to provide and keep the same furnished with safeguards as herein specified."

This act, where "practicable," required that all machinery be "properly and safely guarded."

The defense in this action offered testimony by a number of experts that they did not consider it "practicable" to safeguard this particular machinery. Part of the opinion of the Court is quoted as follows:

"That government may, in the exercise of its police power, provide for the protection of employees engaged in hazardous occupations by requiring that dangerous machinery be safeguarded, and by making the failure to do so an act of negligence upon which a cause of action may be based in case of injury resulting therefrom, is undoubtedly. And it is also not disputable that, consistently with due process, it may be provided that, in actions brought under such statute, the doctrines of contributory negligence, assumption of risk, and fellow servant shall not bar recovery, and that the burden of proof shall be upon the defendant to show a compliance with the act. (Citing various decisions)

While not directly disputing these propositions, and conceding that the Kansas statute contains them, and that it is not invalid for that reason, nevertheless it is insisted that the construction placed upon the statute by the court below causes it to be repugnant to the due process clause of the 14th Amendment. This contention is based alone upon the ruling made by the court below that, under

the statute, the deceased had a right to recover although he had contracted with the owner to provide the safeguards the failure to furnish which caused his death,—a result which, it is urged, makes the owner liable and allows a recovery by the employee because of his neglect of duty. We think the contention is without merit. It is clear that the statute, as interpreted by the court below,—a construction which is not challenged,—imposed a duty as to safeguards upon the owner which was absolute, and as to which he could not relieve himself by contract. This being true, the contention has nothing to rest upon, since, in the nature of things, the want of power to avoid the duty and liability which the statute imposed embraced all forms of contract, whether of employment or otherwise, by which the positive commands of the statute would be frustrated or rendered ineffectual."

A federal act very similar to the Locomotive Boiler Inspection Act and relating to boilers of steamships is known as the Act of March 2, 1905, 1456, 33 Statutes, p. 1028. This Act provided for safe boilers and provided for federal inspectors and for the boilers being certified by the federal inspectors. A boiler used on a steamship, which had been certified as proper by a federal inspector, failed, resulting in injury to a passenger, and the court permitted proof of its unsafe condition, notwithstanding that it had been certified to as complying with the Act by a federal inspector. The question involved there a new type of brace for the boiler which was used by some steamship companies, but not by others. The question as to whether this boiler was safe under the Act without that brace was submitted to a jury and recovery allowed.

*Swarthout vs. New Jersey Steamship Company,*  
48 N. Y. 209;

*Caldwell vs. Steamship Company*, 47 N. Y. 282.

The courts in passing on the Act stated that the purpose of the Act, together with supplying federal inspectors, was to promote greater security and safety of passengers.

A New York statute required "suitable" and "proper" fire escapes, well fastened and secured, and of sufficient strength. This fire escape had been approved by the factory inspector, and injury resulted upon it. Proof of its unsafe condition was allowed in a civil action, and damages recovered.

*Johnson vs. Steam Gauge Company*, 40 N. E. 773.

The real question involved in cases arising under these statutes is the actual safety of the boilers. The approval or disapproval of them by the federal inspectors is not conclusive as to their condition, and the purpose of hiring inspectors is only to promote compliance with the law. In the case of *O'Connor vs. Armour Packing Company*, 158 Fed. 241, the Federal Meat Inspection Act was construed. In that case the Act provided for inspectors, as does the Boiler Inspection Act, and the federal inspector there actually passed a carcass of an animal as being within the Act, and subsequent to his inspection and approval of this carcass an employee became infected through working upon the carcass. Proof of the condition of the carcass, as being in violation of the Act, was allowed and recovery permitted by the court.

Statutes providing for the guarding of dangerous machinery where practicable, naturally raise questions of fact as to the difference of opinion as to what constitutes "practicability" under the situation involved. That this question under those circumstances is for the jury to consider under proper instructions from the

court, and is constitutional, would seem to be decided by this Court in the above cases.

That the rules and orders of the Interstate Commerce Commission under the Boiler Inspection Act do not contemplate all unsafe conditions arising in the operation of the locomotive boiler is evidenced by the provision at the close of their order of adoption, which authorized carriers to provide additional rules for safety and precaution against accidents. Rule No. 1 evidences that the Commission did not at any time seek to direct as to the construction and design of the locomotive boilers, but preferred to leave the responsibility for that on the carriers.

The Supreme Courts of the following States have given a like construction and interpretation to similar remedial statutes and requirements thereunder:

*Sprinkler Company vs. Fender*, 108 Ohio State, 139;

*Jeffersonville Mfg. Company vs. Holden*, 180 Indiana 301;

*Blair vs. Western Cedar Company*, 75 Oreg. 276;

*Forrest vs. Roper Furniture Company*, 267 Ill. 331;

*Streeter vs. Western Wheel Scraper Co.*, 254 Ill. 244;

*Davidson vs. Flower City Ornamental Iron Works*, 107 Minn. 17;

*Wick vs. Gunn*, 66 Okla. 316.

The case of *United States vs. Cohen Grocery Company*, 255 U. S. 81, is cited in the brief of petitioner in support of its claim that the Federal Locomotive Boiler Inspection Act is not constitutional. This case was a criminal prosecution for penalty and required a strict

rule of construction by the court. It is not in any way analogous to remedial statutes such as the Locomotive Boiler Inspection Act in an action for damages for its violation. The Locomotive Boiler Inspection Act is not a penal act, or at most it can be separated, the remedial part from the penal part, and the remedial part requires a liberal rule of construction. Action by the Government for penalty under the Boiler Inspection Act is a civil action, and a mere preponderance of the evidence is sufficient for the Government to prevail.

220 U. S. 559, *Railroad Company vs. United States.*

Similarly are other cases cited by petitioner in its brief, criminal prosecutions requiring a different rule of construction.

The case of *Director General of Railroads vs. Viscos Company*, 254 U. S., p. 498, arises under wholly different power of the Interstate Commerce Commission than is vested in it by the Locomotive Boiler Inspection Act. Under that Act a certain division of the Interstate Commerce Commission was given original and exclusive jurisdiction on questions of rates and tariffs, and the Act provided that rights under the Act must first be passed upon by the Commission before redress could be sought in the courts. In this case redress was sought in the courts before the matter was passed upon by the Commission.

The Federal Boiler Inspection Act has been construed by the courts of the State of Washington and that construction reviewed by this Court under its status prior to the Amendment of 1915, which greatly enlarged its application, in the case of *Railway Company vs. Donaldson*, 246 U. S. p. 121, No. 172, decided by this

Court in 1918. In that case, as in this case, the construction of the Act by the trial court was seriously criticised on the same grounds as upon the construction of the trial court in this case. In the *Donaldson* case the Court charged as follows:

"Instruction No. V.

The plaintiff alleges that the death of Vance H. Thoms was directly caused by the negligence of the defendant railroad company in that the locomotive boiler of the engine on which the explosion took place was negligently allowed to be defective in the following particulars:

1. That the button heads of the crown bolts were excessively large; and
2. That the boiler was not provided with safety fusible plugs; and
3. That scale was negligently allowed by the defendant to accumulate on the crown sheet of the said boiler.

If you find from the evidence that the defendant was negligent in any one or more of these particulars, and that said negligence was the direct cause of the death of Vance H. Thoms then the plaintiff is entitled to recover a verdict at your hands in such sum as you shall determine in accordance with these instructions, not exceeding in any case the sum of \$20,000.00, unless you shall find that Vance H. Thoms assumed the risk of the explosion as herein-after explained."

"Instruction No. VI.

You are instructed that the law provides that it shall be unlawful for any common carrier, as was the defendant, engaged in interstate commerce, to use any locomotive engine propelled by steam power unless the boiler of the locomotive engine and appurtenances thereof are in proper condition and

safe to operate in the service to which the same is put, that the same may be employed in the active service of said carrier in moving traffic, without unnecessary peril to life and limb; and that no employe shall be deemed to have assumed any risk of death by reason of any locomotive engine operated in violation of said law, and that no employe injured or killed by reason of a locomotive engine operated in violation of said law shall be held to have been guilty of contributory negligence.

Therefore, if you shall believe from a fair preponderance of all the evidence in the case that the boiler of the locomotive engine No. 1902 or the appurtenances thereof were not in proper condition and safe to operate in the active service of the defendant in moving traffic without unnecessary peril to life or limb by reason of the negligence of the defendant in any one or more of the three respects alleged in the complaint, then and in that case Vance H. Thoms assumed no risk of death, and was guilty of no contributory negligence, and the affirmative defenses must fail.

However, if such boiler and appurtenances were in proper condition and safe for such use in moving traffic, but due to defendant's negligence were defective in one or more of the respects alleged in the complaint and Vance H. Thoms had actual knowledge of such defect or defects, or such defects were so plainly observable that in the reasonable exercise of his faculties he should have known of such and may be presumed to have known thereof and the dangers that surrounded him, then Vance H. Thoms assumed the risks of injury and the plaintiff cannot recover in this action.

So, also if such boiler and appurtenances were in proper condition and safe for such use in moving traffic but due to defendant's negligence were defective in one or more of the respects alleged, Vance H. Thoms would have been guilty of contributory

negligence if he failed to exercise such care and prudence as an ordinary *and* prudent and careful person engaged in like employment under like circumstances would usually and ordinarily exercise, with the legal effect and result set forth in the following instructions."

The judgment obtained in the *Donaldson* case under this charge was approved by the Supreme Court of the State of Washington and approved by this Court with the statement that it was more favorable to defendant than the law required. It is manifest from this charge that the issues were not clearly defined and concretely stated to the jury by the trial court nor the liability of the defendant as to the fusible plug qualified, as was the charge of the court in the present case, parts of which are quoted herewith:

"(1) Did the defendant permit or allow a dangerous, unsafe and insufficient condition to be and arise in and about the crown sheet of said boiler whereby it was weakened and became defective, unsafe and leaky; whether that was due to any or whatever cause, broken crown or stay-bolts or other causes, and if so, was the boiler explosion thereby caused in whole or in part. Plaintiff asserts that, and the defendant denies it. It will be for you to say under the evidence here, gentlemen, and the law as I state it to you, what the fact is in this respect.

(2) It being conceded that the defendant had failed to install and equip this locomotive engine with a fusible safety plug, it will be for you to say whether or not the standard of duty imposed by law upon the defendant, to see that any locomotive engine propelled by steam in use on its road in interstate commerce was in a proper condition and safe to operate in the service to which it was put, that the same might be employed in the active service in moving traffic without unnecessary peril to life or

limb, was violated by the failure to equip this engine with a fusible safety plug. Plaintiff asserts that it was a violation of the duty imposed by law upon the defendant not so to equip its engine; the defendant asserts the contrary, and that will be the issue to determine under the evidence as I shall state it to you, and if so, whether that was the proximate cause or one of the proximate causes of this injury. The defendant denies these charges of negligence; that places the burden of proof upon the plaintiff, and the plaintiff must sustain that burden by a preponderance of the evidence.

Now, what is the law? As I have stated, these issues are controlled by provisions of the Boiler Inspection Act and by certain provisions of the Federal Employers Liability Act. The Boiler Inspection Act, among other things, provides that it shall be unlawful for any common carrier to use any locomotive engine propelled by steam power, moving in interstate or foreign traffic, unless the boiler of said locomotive engine and appurtenances thereof are in a proper condition and safe to operate in the service to which the same is put, that the same may be employed in the active service of such carrier in moving traffic without unnecessary peril to life or limb.

Such was the duty of the defendant here, and it owed that duty to John Groeger, the deceased engineer, in the equipment of and putting and keeping this engine in condition. The question, then, will be whether or not the defendant used this locomotive engine when it was not in proper condition and safe to operate in the service to which it was put so that the same might be employed in the active service of such carrier without unnecessary peril to life or limb. The standard of duty is that they shall put it in proper condition and keep it in proper condition and safe to operate; it is required that it should be put in a condition and kept in a condition so that it might be employed in the service without unneces-

sary peril to life or limb. This is an absolute duty. If the engine, as to the crown sheet was, in fact, permitted to be or to become in a defective, dangerous or unsafe condition, in such a condition that it was not safe to operate in service, or in such a condition that it could not be employed in the active service of the carrier in moving traffic without unnecessary peril to life or limb, that would be a violation of its duties; and if, as a result of such violation of its duties, the explosion occurred, or such failure was a contributing cause, or a direct and proximate cause, along with others, to the explosion and the resultant injury, the defendant would be liable. And that is true, notwithstanding the defendant may have made or caused to be made inspections from time to time as required by the regulations of the Interstate Commerce Commission, or by skilled and competent employees who may have made repairs in accordance with the reports of such inspections. I say, if it, in fact, permitted that condition to come about, and as a result of that condition, in whole or in part, the explosion resulted, then the defendant would be liable.

Now, as to the failure to install a fusible plug, that depends upon different considerations. In other words, whether the standard of safety which is prescribed by that act requires a fusible plug depends upon somewhat different considerations, as to which it is my duty to charge you. If you shall say and find that the standard of duty imposed by the law required a fusible safety plug to be installed, then the absence of the fusible safety plug would impose upon the defendant here an absolute liability, and the plaintiff would be entitled to recover if the absence of it contributed in whole or in part to cause the explosion and the resulting death. The law does not say that locomotive engines thus used shall have fusible plugs in them. The Interstate Commerce Commission has authority to prescribe

regulations for inspections and for equipment under the Boiler Inspection Act, and the Interstate Commerce Commission has not prescribed as a requirement that fusible safety plugs shall be installed on locomotive engines. It becomes, then, a question to be determined by you under the facts and circumstances of this case whether or not the duty to put locomotive boilers in proper condition so as to make them safe requires the installation of a fusible safety plug. Obviously, new appliances and new inventions may be developed from year to year and from time to time for the safe operation of machinery and of locomotive engines and boilers; whether or not they are feasible, and if feasible, whether or not it is practicable to install them are open questions. That question is not to be determined by looking backwards after an accident, but by looking forward.

An interstate carrier, as well as any railroad carrier, owes the duty, of course, of availing itself of the best mechanical contrivances and inventions in known practical use which are or would be effective in making safe a locomotive boiler against explosions. It is not bound to introduce a new appliance the moment somebody suggests it or discovers it, but is entitled to a reasonable time and opportunity to test it out and make any changes.

Such I conceive to be the rules under which you are here to determine whether or not the standard of duty in making this engine safe did or did not require installation of a fusible safety plug. I say to you it is and was the duty of the defendant to avail itself of the best mechanical contrivances and inventions in known practical use which were or are effective in making the boilers safe as against explosions. Now, the question will be whether or not the fusible plug, the existence of which has been known for many years, is in practical use and is reasonably effective for the purpose for which it is intended. Are the limitations upon its use, namely,

the claimed tendency to encourage negligence by the engineer in the operation and conduct of a locomotive, the risks and hazards incident thereto towards the fireman and other employees, the inconveniences, burdens and perhaps dangers from having engines and trains go dead upon a highway of commerce being used at the same time by other engines and trains,—I say, are these considerations offset against the other considerations which are claimed on behalf of the plaintiff? Are they of such a nature as takes the fusible plug as a means of safety upon an engine out of the category of the best mechanical contrivances and inventions known and in practical use and effective as a means of safety in preventing boiler explosions?

In determining that you will take into consideration all the facts and circumstances of the case, and the practice so far as it has been proven to you among railroad men, reasonably prudent and careful railroad operators, what they have done and what their judgment is in regard to the matter, and determine whether or not the fusible safety plug under the law as I have stated it to you was proper and necessary to put this engine in proper and safe condition to operate, and if the operation of it without such fusible safety plug created an unnecessary peril to the life and limb of the employees. If you shall find, under the charge that I have given you, that a fusible safety plug was required by that standard, and that it was a mechanical means and contrivance in known practical use and effective more than was any other that had been installed by the defendant on this engine, then its absence would be a violation of the Boiler Inspection Act, and if the explosion resulted in whole or in part because of the absence of the fusible plug, and the decedent thereby met his death, plaintiff would be entitled to recover.

X

If John Groeger met his death as a result of the failure of the defendant in either one or both of the respects which I am submitting to you as issues of fact to be determined under the evidence, then he will not be held to have assumed the risk of injury from either or both of those causes, nor will any negligence on his part which may have contributed to cause these injuries or his death bar the plaintiff here from recovery, nor to be taken into account by you in reducing or diminishing her damages.

If, however, gentlemen of the jury, you do not find the defendant was negligent in one or the other of these respects, that is, not guilty of the wrongful conduct and violation of the law as I have stated the law to you, your verdict should be for the defendant. The defendant contends that it furnished the plaintiff's decedent an engine in proper condition and safe in all respects, that there was nothing about it which in its operation imposed an unnecessary peril to the life or limb of the plaintiff's decedent. Unless the evidence by a fair preponderance supports plaintiff's contentions as against these contentions of the defendant, your verdict should be for the defendant. The defendant contends that this engine having thus been furnished in a proper and safe condition, that the handling of that engine thereafter by the decedent was the sole and proximate cause of the death of the decedent, and unless the evidence overcomes that contention of the defendant by a preponderance, it will be your duty to return a verdict for the defendant.

I have said to you, and I repeat, that the negligent or wrongful conduct of the defendant must be either the sole or proximate cause of the decedent's death, otherwise the plaintiff will not be entitled to recover. And by a proximate cause in that connection is meant a cause except for the existence of which the explosion would not have occurred. To be more specific, and as applied to one aspect of the

case, complaint is made that in the crown sheet of this boiler there were six broken stay-bolts and one crown bolt, and that two of these broken stay-bolts were adjacent to each other, whereas the inspection requirements of the Interstate Commerce Commission regulations forbid the use of an engine under the Boiler Inspection Act when there are five or more broken bolts, or where there are two broken bolts contiguous to each other. Even if it should be proved that that requirement of the law was violated, the plaintiff would not be entitled to recover by reason of such violation unless you should further find from a preponderance of the evidence that this specific violation, these specific defects, was either the sole or one of the causes but for the existence of which the explosion would not have taken place. If the existence of these broken stay-bolts had nothing to do with causing the explosion, then you should disregard their existence because, as I say to you, the negligent or wrongful conduct which you may find by a preponderance of the evidence the defendant is guilty of, must have been either the sole or one of the proximate causes of the explosion and of the resultant death of plaintiff's decedent."

Comparison of these charges of the Courts shows that the charge as to the fusible plug is fully defined and concretely stated to the jury and recovery allowed under the claim of statutory violation only in the event the fusible plug was found to be practicable for the prevention of explosions and that the objections to it were overcome by its benefits. This charge is much more favorable to the defendant railroad company in this case than was the charge of the trial court in the *Donaldson* case, where the question of practicability and feasibility of the fusible plug was not left with the jury.

The charge of the trial court in the *Donaldson* case was seriously objected to by the defendant railroad com-

pany in practically the same respects before this Court as in the present case. The construction and interpretation put upon the charge was generally challenged by reason of the Court submitting to the jury to determine the standard of care required under the Act, and whether or not the Act required the installation of a fusible plug. In that case it was the contention of the defendant railroad company that the question of the safe condition of an engine and the question of unnecessary dangers was solely for the inspectors and to be governed solely by the rules promulgated by the operators and by the Interstate Commerce Commission. By virtue of the above, respondent contends that the charge of the Court was eminently fair to defendant railroad company and that the construction and interpretation of the Act involved followed the ruling of this Court in the *Donaldson* case.

(C) The charge of the Court that it was the duty of the defendant to avail itself of the best mechanical inventions in known and practical use for prevention of boiler explosions is eminently fair to the defendant. This Court has held in many cases that the duty required under the Safety Appliance Acts was absolute upon the railroad company and the exercise of the highest degree of care is not a defense for their violation.

*Railroad Company vs. Otos*, 239 U. S. 349;

*Railway Company vs. Rigsby*, 241 U. S. 33;

*Railway Company vs. Layton*, 243 U. S. 617;

*Railroad Company vs. Gotschall, Admr.*, 244 U. S.

66.

(D) Under this heading the brief of petitioner asserts that there was no evidence contained in the record to support the charge of the Court in leaving to the jury

the question of whether or not the crown sheet of the boiler was in a dangerous or defective condition. This testimony has been referred to heretofore in this brief under the claims of statutory violation and negligence of the defendant. Quoting from the record briefly, we find the crown sheet above the firebox was leaking at the front and side. (Record, p. 24, testimony of plaintiff's witness, Bursee.) Both injectors were on and supplying water to the boiler at Foster's Tower, a few miles from where the explosion occurred. (Record, p. 24.) This is not disputed by any witness called by the defendant.

Further, seven broken bolts existed in the crown sheet, which constituted four violations of Rule 25 as announced by the Interstate Commerce Commission. (Record, pp. 18, 19 and 39.) That these broken bolts described could have been discovered by an inspection, and existed prior to the accident, is evidenced by the testimony of defendant's Master Mechanic, McGann. (Record, pp. 18, 19 and 39.) That this condition of broken bolts weakened the internal resistance of the boiler is shown by the testimony of plaintiff's witness, Boyden. (Record, p. 25.) That the condition of the boiler at Moundsville some miles before the explosion occurred is evidenced by the testimony of plaintiff's witness, Bursee, that the engineer asked the dispatcher to be allowed to give up the locomotive, as he was afraid of it, but by the dispatcher was ordered to proceed with the locomotive. (Record, p. 27.)

The existence of the above conditions is evidenced in the opinion of Judge Donahue of the Circuit Court of Appeals in passing upon this case as follows:

"The uncontradicted evidence establishes the fact that at and prior to the time this boiler ex-

ploded there were seven staybolts broken. One staybolt at the forward part of the crown sheet; three intermediate stays on the right side of the crown sheet within a radius of 16 inches, two of which were adjacent. Three on the left side, two of which were within 8 inches of each other and the third within 12 inches of the other two.

The operation of this engine with these broken staybolts was in violation of Rule 25 of the Interstate Commerce Commission in that more than five bolts were broken; in that two of these broken bolts were adjacent; in that three of these bolts on the right side of the boiler were within a radius of eighteen inches and three on the left side of the boiler within a radius of eight inches. It is claimed, however, on the part of the plaintiff in error that there is no evidence whatever that these broken staybolts contributed in any way to the explosion but on the contrary that the testimony of experts tends to prove that they contributed in no way whatever to the tear of the crown sheet and the consequent explosion of the boiler.

Expert evidence in reference to the ultimate question of fact for the determination of a jury may be helpful but is not controlling. Notwithstanding this expert evidence the question was one for the jury to decide from all the evidence whether these broken staybolts caused or contributed to the explosion. That question was properly submitted to the jury by the trial court.

Wholly apart from these broken staybolts there is sufficient evidence in this record as to the defective condition of this engine in other respects, to sustain the verdict of the jury.

It is claimed on behalf of the plaintiff in error that the explosion of this engine was caused by low water. There is evidence in this record tending to prove that the boiler was in a leaking condition; that it was leaking up around the front and the side

—the fire was dead and that when the door of the fire box was open the steam came out with a gush.'

There is also evidence tending to prove that the engine took water at Foster's Tower about three miles from the place where it exploded; that water was supplied from the tank to the boiler by two injectors and that at Foster's Tower both of these injectors were working. If it were conceded that low water caused this explosion, the natural inference from this evidence would be that the engine was in such a defective and leaky condition that water could not be supplied fast enough by these two injectors to keep the crown sheet covered, although it appears from the testimony of the railroad company's master mechanic that with one injector working, the water would be kept above the crown sheet in the normal operation of the locomotive. The evidence also tends to prove the defendant was fully advised of the defective condition of this engine. When the train was at Moundsville, Groeger, the engineer, notified the defendant's train dispatcher that he was afraid of this engine and asked to be relieved of it, but the dispatcher ordered him to continue its use.

It is claimed, however, that this explosion was due solely to the manner in which this engine was operated and not to any defects therein; that if the water was low in this engine the engineer could readily have discovered that fact from the water glass and gauge cocks, and that as soon as the water became dangerously low it was his duty to stop the engine and draw the fire.

The presumption obtains that Groeger was exercising due care for his own safety. This presumption is strengthened by the evidence that he knew the engine was in such a defective condition that he was afraid of it and asked to be relieved from using it. There is no direct evidence in this record that he was negligent in any respect. Nor

does the inference that he was negligent necessarily follow from the facts admitted or proven in this case. It was, therefore, a question for the jury to determine whether this explosion was caused by the manner in which it was operated or by its defective condition in one or more of the particulars in which the evidence tends to show it was defective.

It is also claimed on behalf of the plaintiff in error that the court erred in submitting to the jury the question whether the failure to equip with a fusible plug was a violation of the Safety Appliance Act, for the reason that is a question to be determined by the Interstate Commerce Commission. That Commission has made no rule or order in reference thereto other than Rule No. 14, which reads as follows:

‘If boilers are equipped with fusible plugs they shall be removed and cleaned of scale at least once every month. Their removal must be noted on the report of inspection.’

The fact, however, that the Interstate Commerce Commission has made no order requiring boilers to be equipped with these plugs is by no means conclusive of the question. It was said by the Supreme Court in *Railway v. Donaldson*, 246 U. S. 121, 128:

‘We find nothing in the Boiler Inspection Act to warrant the conclusion that there is no liability for an unsafe locomotive in view of the provisions of Section 2 of the Act, because some particular feature of the construction which has been found unsafe has not been disapproved by the Federal Boiler Inspector.’

Section 2 of the Boiler Inspection Act provides that it shall be unlawful for any common carrier subject to this Act to use any locomotive engine propelled by steam power in moving interstate or foreign traffic, unless the boiler of the locomotive

and appurtenances thereof are in proper condition and safe to operate in the service to which the same is put without unnecessary peril to life or limb. While the Interstate Commerce Commission is authorized to make rules and orders in furtherance of the enforcement of this law, nevertheless its failure to make a rule or an order covering every defective condition or construction within the meaning of Section 2 of the Boiler Inspection Act by no means relieves the carrier from complying with the provisions of that section.

This issue was presented by the pleadings but it is claimed on behalf of plaintiff in error, that the weight of the evidence directed to that issue, establishes the fact that fusible plugs are not in general use by railroad systems; that they have never been accepted and used by master mechanics and locomotive engineers as standard equipment in locomotive service; that while fusible plugs present an element of safety, and would probably have prevented the explosion in this case, nevertheless they accumulate scale on the top of the plug, and this permits the plug to heat so that the soft metal will melt and run out, causing the engine to fail in service on the line, and that sometimes this results in injury to the fireman, if he should be firing just at the time the soft metal runs out of the plug, permitting the steam to blow the fire and hot cinders out of the door of the firebox and that the presence of a fusible plug tends to negligence on the part of the engineer in failing to keep sufficient water in the engine.

There is, however, substantial evidence in this regard tending to prove that fusible plugs are extensively used; that they may be rounded at the top, so that the scale will not accumulate thereon; that they are generally recognized as effective and reliable means for preventing boiler explosions from low water and that if this engine had been equipped

with a fusible plug this explosion would not have occurred, regardless of the other claimed defects. Upon this state of the proof, it was the duty of the court to submit this issue to the jury. This court has no authority to consider or determine the question of the weight of the evidence.

If, however, it were conceded that there is no substantial evidence in this record tending to prove that Section 2 of the Boiler Inspection Act requires that boilers generally should be equipped with a fusible plug, nevertheless the presence or absence of a fusible plug in this particular boiler was an important fact to be considered by the jury in determining whether this boiler, defective in other particulars, was or was not unsafe to operate in the movement of this train, transporting goods and merchandise in interstate commerce. There is substantial evidence in this record tending to prove that this boiler was defective in the particulars heretofore mentioned; that regardless of these defects it might have been entirely safe to operate if it had been equipped with a fusible plug; but without such plug these defects would render it unsafe and dangerous to operate and unnecessarily imperil life and limb.

While the evidence does not disclose the information given to the train dispatcher by the engineer Groeger, when he asked to be relieved of this engine, as to the nature and extent of the defects, nevertheless, the train dispatcher was advised that in the opinion of the engineer in charge, the engine was defective and dangerous and it was his duty to obtain full information in reference to these defects before ordering and directing that its use be continued for the balance of the trip. Whether he did this or not the defendant must be held to have had knowledge of these particular defects and also knowledge that this engine was not equipped with a fusible plug which, under the proofs of this case,

would not only have mitigated the danger from these defects, but would have actually prevented the explosion.

In determining whether this particular boiler was then safe to operate in the service of the carrier in moving traffic, without unnecessary peril to life or limb, it was proper for the jury to take into consideration, in connection with the other evidence tending to prove its defective condition, the fact that this boiler was not equipped with a fusible plug. That being true, the charge of the court on this subject could not have been prejudicial to defendant.

For the reasons stated, the judgment of the district court is affirmed."

This case is clearly distinguishable from the case of *Great Northern Railway Company vs. Wiles*, 240 U. S., p. 444, cited by petitioner in his brief. In that case a freight train separated by means of the draw-bar pulling out. Immediately on its separation the engineer signalled for the brakeman to go to the rear of the train to protect it and the oncoming passenger train. The brakeman whose duty it was to do this remained in the caboose, wholly failing to protect either train as required by the rules of the Company. The passenger train following crashed into the rear of the train in the caboose of which the brakeman remained, causing his death. The separation of the train had no connection with the accident, which was due wholly to the failure of the brakeman to protect both trains. The record in that case would indicate that the brakeman was asleep in the caboose. Plaintiff submits, therefore, that the decision as announced by this Court in the *Wiles* case, and the reasons therefor are not applicable in any measure to the present case.

**CONCLUSION.**

Summarized, the evidence shows that plaintiff's decedent was using every means provided by the Company with the equipment on the locomotive to supply water to the boiler, and that he was in no way responsible for the disaster that resulted in the use of the engine, having asked to give up the engine at a point several miles before the explosion occurred; that the Boiler Inspection Act, enacted particularly for the safety of employees and the public, was violated in four respects and that the equipment of the engine was inadequate for safety and resulted in unnecessary dangers in its operation.

Respondent, therefore, respectfully submits that the judgment below should be affirmed.

E. C. CHAPMAN,

*Attorney for Respondent.*

BALTIMORE & OHIO RAILROAD COMPANY v.  
GROEGER, ADMINISTRATRIX OF GROEGER.

CERTIORARI TO THE CIRCUIT COURT OF APPEALS FOR THE  
SIXTH CIRCUIT.

No. 113. Argued October 24, 1924.—Decided January 5, 1925.

1. Section 2 of the Boiler Inspection Act, in making it unlawful for any common carrier "to use any locomotive engine propelled by steam power . . . unless the boiler . . . and appurtenances thereof are in proper condition and safe to operate in the service to which the same is put, that the same may be employed in the active service of such carrier in moving traffic without unnecessary

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- peril to life or limb,"—prescribes a sufficiently definite standard of duty. P. 523.
2. Under this section the carrier's duty to have the boiler in safe condition is absolute and continuing. P. 527.
  3. Where a breach of this duty is a contributing cause of an explosion resulting in the death of an employee, the carrier is liable under this Act, and the Employers' Liability Act, whether or not it had notice, actual or constructive, that the boiler was defective or unsafe. *Id.*
  4. Evidence considered and held sufficient to go to the jury on the question whether a defective or dangerous condition of the crown sheet was a contributing cause of the explosion of a locomotive boiler. P. 524.
  5. The carriers are left free to determine how their boilers shall be kept in the prescribed condition of safety, and are not required to furnish the best mechanical contrivances and inventions to that end or to discard appliances upon discovery of later improvements. P. 528.
  6. A charge authorising a jury to decide that the standard of duty imposed by the Boiler Inspection Act required a fusible safety plug to be installed, and instructing them that in such case its absence would impose on the carrier an absolute liability,—held erroneous. P. 531.
- 288 Fed. 321, reversed.

CERTIORARI to a judgment of the Circuit Court of Appeals affirming a recovery against the railroad in an action under the Federal Employers' Liability and Boiler Inspection Acts.

*Mr. W. T. Kinder*, with whom *Mr. S. H. Tolles*, *Mr. J. P. Wood* and *Mr. J. W. Reavis* were on the brief, for petitioner.

*Mr. E. C. Chapman* for respondent.

MR. JUSTICE BUTLER delivered the opinion of the Court.

Respondent, administratrix of the estate of her deceased husband, John C. Groeger, brought this action against the petitioner in the district court for the northern

district of Ohio, to recover damages for his death. He was a locomotive engineer employed by the defendant, and at the time of his death, September 3, 1920, was operating a steam locomotive propelling an interstate train. He was killed by the explosion of the boiler. The action was brought under the Federal Employers' Liability Act of April 22, 1908, 35 Stat. 65, and the Federal Boiler Inspection Act of February 17, 1911, § 2, 36 Stat. 913, amended March 4, 1915, 38 Stat. 1192.

The court submitted for decision of the jury two issues: whether the explosion was caused in whole or in part by an unsafe and insufficient condition permitted by defendant in and about the crown sheet of the boiler; and whether defendant's failure to have a fusible plug in the crown sheet violated § 2 of the Boiler Inspection Act. There was a verdict and judgment for plaintiff. Defendant took the case to the Circuit Court of Appeals, where the judgment was affirmed. 288 Fed. 321.

1. Defendant asserts that § 2 of the Boiler Inspection Act prescribes no definite or ascertainable standard of duty. That section provides that it shall be unlawful "for any common carrier . . . to use any locomotive engine propelled by steam power . . . unless the boiler . . . and appurtenances thereof are in proper condition and safe to operate in the service to which the same is put, that the same may be employed in the active service of such carrier in moving traffic without unnecessary peril to life or limb. . . ." It imposes upon the carrier a higher degree of duty than theretofore existed. The requirement of the statute is substituted for the common law rule which holds the employer to ordinary care to provide his employees a reasonably safe place in which, and reasonably safe appliances and machinery with which, to work. It is as definite and certain as is the common law rule; and to hold that the duty imposed cannot be ascertained would be as unreasonable as it

would be to declare that the common law rule which is ordinarily applied in personal injury actions brought by employees against employers is too indefinite to be enforced or complied with. The contention is without merit.

2. Defendant insists that there was no evidence to support a finding that the explosion resulted from any defective or dangerous condition of the crown sheet.

The credibility of witnesses, the weight and probative value of evidence are to be determined by the jury and not by the judge. However, many decisions of this court<sup>1</sup> establish that, in every case, it is the duty of the judge to direct a verdict in favor of one of the parties when the testimony and all the inferences which the jury could justifiably draw therefrom would be insufficient to support a different finding.

<sup>1</sup> *Pawling v. United States*, 4 Cr. 219, 221; *United States v. Breitling*, 20 How. 252, 254-255; *Schuchardt v. Allens*, 1 Wall. 359, 369; *Merchants' Bank v. State Bank*, 10 Wall. 604, 637; *Improvement Co. v. Munson*, 14 Wall. 442, 448; *Pleasants v. Fant*, 22 Wall. 116, 121-122; *Herbert v. Butler*, 97 U. S. 319, 320; *Bowditch v. Boston*, 101 U. S. 16, 18; *Griggs v. Houston*, 104 U. S. 553; *Phoenix Ins. Co. v. Doster*, 106 U. S. 30, 32; *Russell v. Allen*, 107 U. S. 163; *Anderson County Commissioners v. Beal*, 113 U. S. 227, 241; *People's Savings Bank v. Bates*, 120 U. S. 556, 561-562; *North Penn. Railroad v. Commercial Bank*, 123 U. S. 727, 733; *Kane v. Northern Central Railway*, 128 U. S. 91, 94; *Dunlap v. Northeastern Railroad*, 130 U. S. 649, 652; *Delaware &c. Railroad v. Converse*, 139 U. S. 469, 472; *Texas & Pacific Ry. Co. v. Cox*, 145 U. S. 593, 606; *Elliott v. Chicago, Milwaukee & St. Paul Railway*, 150 U. S. 245; *Gardner v. Michigan Central Railroad*, 150 U. S. 349, 360; *Union Pacific Ry. Co. v. McDonald*, 152 U. S. 262, 283; *Southern Pacific Co. v. Pool*, 160 U. S. 438, 440; *Patton v. Texas & Pacific Railway Co.*, 179 U. S. 658; *Marande v. Texas & Pacific Ry. Co.*, 184 U. S. 173, 191; *McGuire v. Blount*, 199 U. S. 142, 148; *Empire State Cattle Co. v. Atchison Ry. Co.*, 210 U. S. 1, 10; *Delk v. St. Louis & San Francisco R. R.*, 220 U. S. 580, 587; *Slocum v. New York Life Insurance Co.*, 228 U. S. 364, 369.

The parts of the firebox and boiler involved may be described briefly. One side of the metal forming the top and sides of the firebox is exposed to the fire, and the other side forms a part of the boiler and, when the engine is in use, is covered by water. In order to strengthen and to hold in proper position the sides and top of the firebox in relation to the opposite exterior walls of the boiler, staybolts are used, extending from the inside of the firebox to the outside of the boiler. There were 1464 such bolts on the engine under consideration. The top of the firebox is called the crown sheet. It is kept covered with water while the engine is in operation; and if allowed to be without water thereon, it will become so overheated that damage or explosion will be liable to result. Fusible plugs are made of soft metal, which will melt at relatively low temperature. They may be, and sometimes are, inserted into and used as part of the crown sheet; and are so shaped and placed that the end of the plug inside the boiler extends slightly above the surface of the metal surrounding it. It is intended that, if the water on the crown sheet shall be too low, the fire will melt out the plug before greater damage or explosion results, and allow the steam to escape from the boiler into the firebox and so relieve the pressure and check or extinguish the fire.

Rule 25, approved by the Interstate Commerce Commission, is as follows: "No boiler shall be allowed to remain in service when there are two adjacent staybolts broken or plugged in any part of the firebox or combustion chamber, nor when three or more are broken or plugged in a circle four feet in diameter, nor when five or more are broken or plugged in the entire boiler." Rule 14 of the Commission is as follows: "If boilers are equipped with fusible plugs, they shall be removed and cleaned of scale at least once every month. Their removal must be noted on the report of inspection." This does not

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purport to require fusible plugs to be used. There was none in the crown sheet in question. It was shown that the boiler had seven broken staybolts, and that they had been broken some time before the day the explosion occurred. Three were intermediate on one side within a radius of sixteen inches; three, two of which were adjacent, were intermediate on the other side within a radius of twelve inches, and one was at the front end of the crown sheet. Use of the boiler in that condition violated Rule 25. The evidence showed that overheating of the crown sheet has a tendency to injure and fracture staybolts; but it was not shown what caused these to break. All persons on the engine,—engineer, fireman and brakeman,—were killed. The train stopped at Foster's Tower, about three miles from the place of the explosion, and there water was taken into the tank. A brakeman employed on another train, then at that station, testified that he went into the cab of Groeger's engine, and that, while there, he observed that water and steam were escaping from the boiler into the firebox; that he heard the sizzling of the water upon the fire; that, when he opened the firebox door, steam gushed out; that the fire was dead; that the steam gauge showed 160 pounds pressure, and that water was being put into the boiler by the two injectors. There was no evidence that, prior to the day of the explosion, there was any improper or unsafe condition or defect in the boiler, other than the broken staybolts. The testimony of the locomotive engineers, who operated the engine several days immediately preceding the explosion, was to the effect that the injectors, gauge cocks, and water glass,—the means by which the supply of water in the boiler was controlled and observed,—were in good condition. The testimony of a number of witnesses, whose experience qualified them to give opinion evidence on the basis of conditions existing after the explosion, supported the defendant's contention that the

broken staybolts did not cause or have any connection with the explosion; and, as to that matter, there was no substantial conflict in the evidence. The location of these broken staybolts in relation to the place of the tear or rupture was shown to be such that the explosion was not caused by them. And we find no evidence in the record to support a finding that they caused or contributed to cause the explosion. But we agree with the Circuit Court of Appeals that, under § 2 of the statute, there was sufficient evidence to sustain the verdict, wholly apart from the broken staybolts. Defendant's duty to have the boiler in a safe condition to operate so that it could be used without unnecessary peril to its employees was absolute and continuing. No notice to the defendant, actual or constructive, of the defects or unsafe condition of the boiler was necessary to plaintiff's case. Defendant is liable if its breach of duty contributed to cause the death. We are bound to assume that the condition of the boiler at Foster, a very short time before the explosion, was as indicated by the testimony of the brakeman above referred to. His credibility and the weight properly to be given to his testimony were for the jury. And if the boiler was in the condition he described, it would not be unreasonable to conclude that a breach of duty of defendant caused or contributed to cause the explosion. We think it did not conclusively appear that the failure of deceased properly to operate the engine was the sole cause of the explosion. It follows that the evidence made a case for the jury.

3. The court, in harmony with the provisions of § 2, instructed the jury that the standard of defendant's duty was to put and keep the locomotive in proper condition and safe to operate, and that it would be a violation of defendant's duty if the engine, as to the crown sheet, was permitted to be in such a condition that it could not be employed in the active service of the carrier moving the

traffic without unnecessary peril to life or limb. And further instructed as follows: "If you shall say and find that the standard of duty imposed by the law required a fusible safety plug to be installed, then the absence of the fusible safety plug would impose upon the defendant here an absolute liability, and the plaintiff would be entitled to recover if the absence of it contributed in whole or in part to cause the explosion and the resulting death. . . . An interstate carrier, as well as any railroad carrier, owes the duty, of course, of availing itself of the best mechanical contrivances and inventions in known practical use which are or would be effective in making safe a locomotive boiler as against explosions. It is not bound to introduce a new appliance the moment somebody suggests it or discovers it, but is entitled to a reasonable time and opportunity to test it out and make any changes. . . . If you shall find . . . that a fusible safety plug was required by that standard, and that it was a mechanical means and contrivance in known practical use and effective more than was any other that had been installed by the defendant on this engine, then its absence would be a violation of the Boiler Inspection Act . . . ."

That act was passed to promote the safety of employees and is to be read and applied with the Federal Employers' Liability Act. Under the latter, defendant is liable for any negligence chargeable to it which caused or contributed to cause decedent's death (§ 1); and he will not be held guilty of contributory negligence (§ 3) or to have assumed the risks of his employment (§ 4) if a violation of § 2 of the Boiler Inspection Act contributed to cause his death. See *Great Northern Ry. Co. v. Donaldson*, 246 U. S. 121, 124; *St. Louis & Iron Mountain Ry. v. Taylor*, 210 U. S. 281, 294; *Louisville & Nashville R. R. Co. v. Layton*, 243 U. S. 617, 620.

By the last mentioned section, defendant was bound absolutely to furnish what before, under the common law,

it was its duty to exercise ordinary care to provide. The carriers were left free to determine how their boilers should be kept in proper condition for use without unnecessary danger. The things required for that purpose were not prescribed or changed by the act; but use of boilers unless safe to operate as specified was made unlawful, and liability for consequences follows violation of the act. It is a well established rule that the master is not bound to furnish the latest or best tools or appliances for the use of his servants. That rule is applicable here, and we hold that defendant was not liable for failure to furnish the best mechanical contrivances and inventions or to discard appliances upon discovery of later improvements, provided the boiler was in proper condition and safe to operate, as required by the statute. *Chicago & Northwestern Ry. Co. v. Bower*, 241 U. S. 470, 474; *Patton v. Texas & Pacific Ry. Co.*, 179 U. S. 658, 664; *Washington, &c. R. R. Co. v. McDade*, 135 U. S. 554, 570.

The jury was by the charge authorized to find that the act required defendant to have a fusible plug in the crown sheet of the boiler. There is nothing in the act or in any rule, regulation or order authorized by it, which specifies the use of fusible plugs. This, however, does not relieve the defendant of the duty to have and keep its boilers safe for use as required by the act. *Great Northern Ry. Co. v. Donaldson*, *supra*, 128. The use of fusible plugs has been known for a long time. The record does not contain a complete showing of the extent of their use; but it appears that the Erie Railroad uses them, and that for some years defendant used them; that defendant has now about 2,700 locomotives, and does not have fusible plugs in any of them; and it was shown that they are not used by the New York Central, the Chicago, Burlington & Quincy, the Illinois Central, or the Nickel Plate. In 1899, the American Railway Master Mechanics Association, whose members represent nearly all the railroads in

the country, passed a resolution expressing the sense of the Association to be "that the use of fusible plugs in the crown sheets of locomotive fireboxes is not conducive to the prevention of the overheating of the crown sheet." It appears that, among practical men experienced in such matters, there is a difference of opinion as to the usefulness of such plugs. If the question whether the standard of duty fixed by the act required defendant to have a fusible plug in the crown sheet of the boiler were one for the determination of a jury, we think there was evidence which would sustain a verdict in the affirmative or in the negative. But we think the question was not for the jury. *Southern Pacific Co. v. Soley*, 152 U. S. 145, 150; *Tuttle v. Milwaukee Railway*, 122 U. S. 189, 194; *Randall v. Baltimore & Ohio R. R. Co.*, 109 U. S. 478, 483; *Kilpatrick v. Choctaw, O. & G. R. Co.*, 121 Fed. 11; *Richards v. Rough*, 53 Mich. 212, 216. And see *Southern Pacific Co. v. Berkshire*, 254 U. S. 415, 417. The act required a condition which would permit use of the locomotive without unnecessary danger. It left to the carrier the choice of means to be employed to effect that result. While the burden was on the plaintiff to prove a violation of the act by defendant, she was not bound to show that any particular contrivance or invention was suitable or necessary to have and keep the boiler in proper condition. There is a multitude of mechanical questions involved in determining the proper construction, maintenance and use of the boilers, other parts of locomotives, their tenders and appurtenances, all of which are covered by the Boiler Inspection Act, as amended. Inventions are occurring frequently, and there are many devices to accomplish the same purpose. Comparative merits as to safety or utility are most difficult to determine. It is not for the courts to lay down rules which will operate to restrict the carriers in their choice of mechanical means by which their locomotives, boilers, engine tenders and appurtenances

are to be kept in proper condition. Nor are such matters to be left to the varying and uncertain opinions and verdicts of juries. The interests of the carriers will best be served by having and keeping their locomotive boilers safe; and it may well be left to their officers and engineers to decide the engineering questions involved in determining whether to use fusible plugs or other means to that end. *Tuttle v. Milwaukee Railway, supra*, p. 194; *Richards v. Rough, supra*, p. 216. The presence or absence of a fusible plug was a matter properly to be taken into consideration in connection with other facts bearing upon the kind and condition of the boiler in determining the essential and ultimate question, i. e. whether the boiler was in the condition required by the act.

But we think the court erred in instructing the jury that defendant was bound to avail itself of "the best mechanical contrivances and inventions in known practical use which are or would be effective in making safe a locomotive boiler as against explosions," and also erred in authorizing the jury to decide that "the standard of duty imposed by the law required a fusible safety plug to be installed", and that "the absence of the fusible safety plug would impose upon the defendant here an absolute liability."

*Judgment reversed.*